

# Math Anxiety

## INTRODUCTION

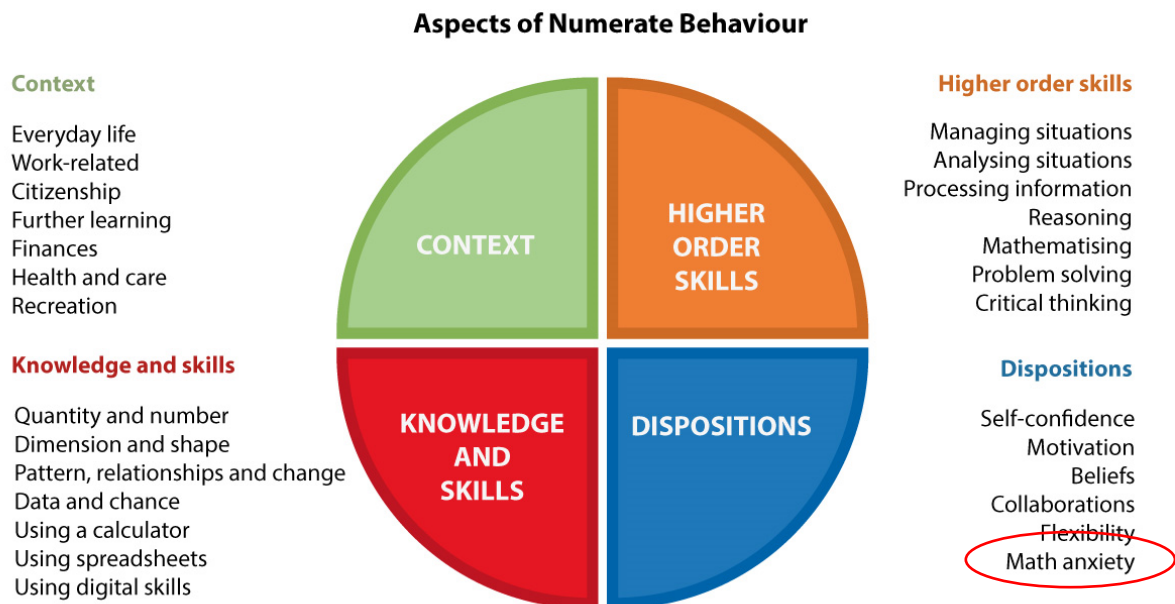
Math anxiety is a product of schooling. Only when children enter school at a certain age, they are confronted with a subject matter which not only pretends to equip them with valuable skills, but also is a source of endless negative feedback during learning (wrong answers, red pencils, red crosses in digital lesson materials) and of selection and negative labelling (“no math talents”, “low numerate”, “innumerate”, “gaps”: , “remedy’s”, etcetera).

The phenomenon was described for the first time by Sheila Tobias (1978) in her ground breaking publication “Overcoming Math Anxiety”.

## KEY ISSUES

- What role does math anxiety play in the life of adult individuals?
- How can math anxiety be addressed in adult numeracy courses?
- Which educational activities or approaches can trigger and worsen math anxiety?

## RELATION TO CENF



## SUGGESTIONS FOR PD MEETINGS

### 1. *Discuss possible causes of math anxiety*

**Read the following text. Then discuss possible causes in the PD-meeting.**

“There are books, research and journal articles about maths anxiety that are disproportionately higher than subject specific anxiety around any other National Curriculum subject. Perhaps it is the idea that maths is either right or wrong, that causes this anxiety- the unforgiving nature of a subject felt to be largely black or white, without the shades of grey in English or the openness to interpretation of the social sciences? Maybe it is the way in which maths so often becomes too abstract too quickly in many classroom contexts, with little or no reference to concrete manipulatives and pictorial representations beyond early key stage two? It could even stem from the lie that some people are ‘maths people’ whilst others are not, or the systemic view in some cultures that it is OK to be rubbish at maths and even joke about this in a way in which illiteracy would never be held up in self-ridicule.” (source: <https://www.dyscalculianetwork.com/math-anxiety-the-bear-in-the-classroom/>)

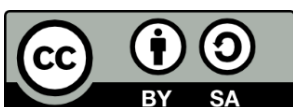
### 2. *Biographical conversations instead of assessments*

To determine a learner’s current numeracy level, the most common approach is to use a test, without considering whether it will trigger a long history of math anxiety and terrible math or numeracy experiences. In adult education, it is a very sensible approach to conduct an empathetic interview about school, about their experiences, about the way they use math now in their daily lives, focused on success.

### 3. *Reduce Math Anxiety*

What precautions should be taken to reduce math anxiety:

- In lesson materials?
- In the approach to learners?
- in the use of assessments and tests?



## BACKGROUND INFORMATION

### 1. Some history



Read the first article by Sheila Tobias published in 1976. Source: <https://msmagazine.com/wp-content/uploads/2022/09/Math-Anxiety.pdf>

Describe how you relate to this article. What has changed in 50 years? What is still the same in your opinion?

BTW: The concept of “number anxiety” was introduced by Dreger and Aiken in 1957.

- Sheila Tobias (1978) *Overcoming math anxiety.*
- Sheila Tobias (1993) *Overcoming math anxiety.* (New and expanded edition)

Free copies of the pdf's can be found on the internet.

### 2. Assessment and Instruments

Study several surveys/test/instruments to determine math anxiety. Which are suitable for your own teaching situation? Translate and adapt instruments to determine math anxiety.

### 3. Math anxiety versus performance anxiety

See Dowker (2016) and other resources to make a summary of the overlap and distinction between math anxiety and other anxieties.

### 4. Overview

Dowker c.s. (2016) gave an overview of research on Math Anxiety in the last 60 years. The construct of mathematics anxiety has been an important topic of study at least since t and has received increasing attention in recent years. The paper focuses on what research has revealed about mathematics anxiety in the last 60 years, and what still remains to be learned. Topic which are discussed are:

- what is mathematics anxiety
- how distinct it is from other forms of anxiety;
- how it relates to attitudes to mathematics.
- the relationships between mathematics anxiety and mathematics performance.
- research on treatment

Also you can find some ways in which mathematics anxiety is measured, both by questionnaires, and by physiological measures. They discuss some possible factors in mathematics anxiety, including genetics, gender, age, and culture.

5. *Recent literature*

Recent research and ideas on math anxiety and adult learners can be found in a article by Ryan & Fitzmaurice (2017). Behind the Numbers: The preliminary findings of a mixed methods study Investigating the Existence of Mathematics Anxiety Among Mature Students.



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This material was produced in the Erasmusplus project **Numeracy in Practice**, projectnumber 2021-1-NL01-KA220-ADU-000 026 292. In this project, 11 partners in 11 countries worked together in designing, evaluating and improving the materials. All materials can be found on the website ([www.cenf.eu](http://www.cenf.eu)).



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