



Maths Learning Centre



LIBRARIES AND LEARNING

Students' Reflections on Maths Anxiety

Maths Learning Centre (MLC)

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Overview

- Previous work
- Participants
- Typical workshop
 - Maths anxiety
 - Symptoms
 - Strategies
- Student comments
- Take away

Previous Work

- Identification of MA
- Interdisciplinary working
 - Purpose to help engage with maths
 - Entry requirements: No maths
- Activities workshops
 - Using building blocks, Lego and paper

Participants

- Personal and Academic Development 1st Year (L4) Module
 - **Assessment:** No Maths
- Pre-reg nursing and midwifery 1st Year (L4) Module
 - **Assessment:** Dosage calculations, statistics
- Education Studies 1st Year (L4) Module
 - **Assessment:** GCSE required if going onto Teacher training

Identifying MA

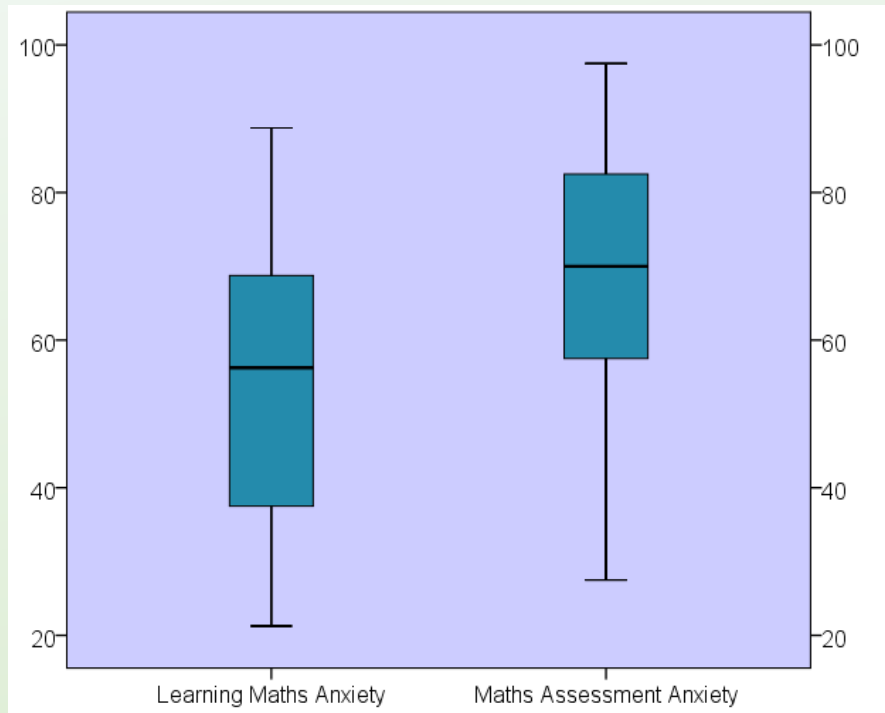
Maths Anxiety Ratings Scale (MARS)

The Mathematics Anxiety Rating Scale—Revised (MARS—R; Plake & Parker, 1982)

1=Not Anxious; 2=Little Anxious; 3=Neutral; 4=Anxious; 5=Highly Anxious						
#	Question	1	2	3	4	5
1	Getting ready to study for a maths test.					
2	Reading the work "Statistics".					
3	Being told how to interpret probability statements.					
4	Reading and interpreting graphs or charts.					
5	Taking an examination (final) in a maths course.					
6	Picking up a maths textbook to begin working on a homework assignment.					
7	Starting a new chapter in a maths book.					
8	Waiting to get a maths test returned in which you expected to do well.					
9	Reading a formula in chemistry.					
10	Being given a homework assignment of many difficult problems which is due the next class meeting.					
11	Being given a "pop" quiz in a maths class.					

Identifying MA

Maths Anxiety Ratings Scale (MARS)



Area	Maths Learning Anxiety	Maths Assessment Anxiety
Median	56.35%	70.00%
IQR	31.56%	26.88%

Over 50% on either scales indicate Maths Anxiety

New Workshop

1. Reflect on personal engagement with Maths with the intention of increasing engagement
2. Participate in Maths Anxiety (MA) Ratings Questionnaire to recognise their relationship with maths
3. Understand MA and learn about strategies to tame the anxiety
4. To help improve student engagement and my teaching

Taming Maths Anxiety Reflections

1. What would you have said to me about maths?

- *Part of starter activity*
- *Putting students at ease*
- *They are not going to be doing a 'test'*

2. Write down your best or worst experience of maths teaching so far

- *Effects of previous experience*
- *Becoming reflective*

Taming Maths Anxiety Reflections

3. The last time you felt these kinds of symptoms and how that related to the last time you did maths? If at all.
 - *Time to reflect on and write down their anxiety symptoms*
4. Consider an approach or strategy you have used in an anxious or stressful situation.
 - *Positive turn - thinking about their successes*



Taming Maths Anxiety



Starter Activity

- What would have said to me about maths?

I only enjoyed maths is if I had the hang of the topic. Overall I do not enjoy doing maths because I stress out when I have to work out numbers.

- Write down your best or worst experience of maths teaching so far
- Having to workout equations on the board and taking time, and teacher asking me to sit back down.

Reflective Activity

- The last time you felt these kinds of symptoms and how that related to the last time you did maths? If at all.

At college. When I studied Functional Skills maths the questions were very long and complex and it was to much to take on.

Discussion Activity:

- Consider an approach or strategy you have used in an anxious or stressful situation. Trying to keep calm, but my mind wont ease and the numbers feel like they are everywhere. I tend to still use my fingers when counting to avoid my mind of loosing concentration.
- Discuss as much as possible with your neighbor the situation and your approach



105 participants



Taming Maths Anxiety

Starter Activity

- What would have said to me about maths?
- I actually enjoyed maths get D's in my exams.
- Write down your best or worst experience of maths teaching so far
- Not passing GCSE.

Reflective Activity

- The last time you felt these symptoms and how that related to the last time you did maths?
- frustration from
• very stressed
• wanting quit
• lack of confidence

Discussion Activity:

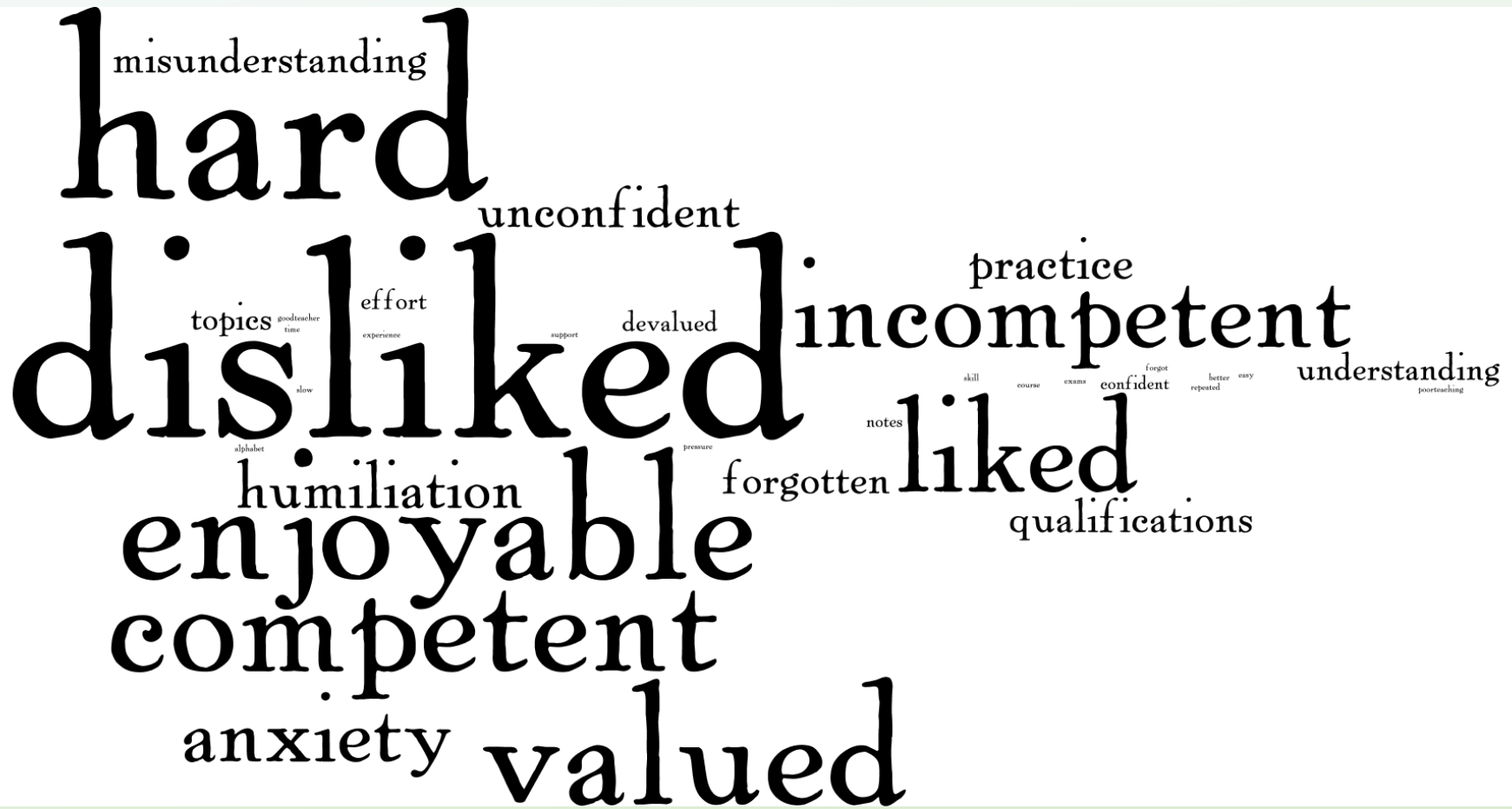
- Consider an approach or strategy you have used in an anxious or stressful situation

and how that related

was when I had to do exams (on squared / Hardy Weibull)

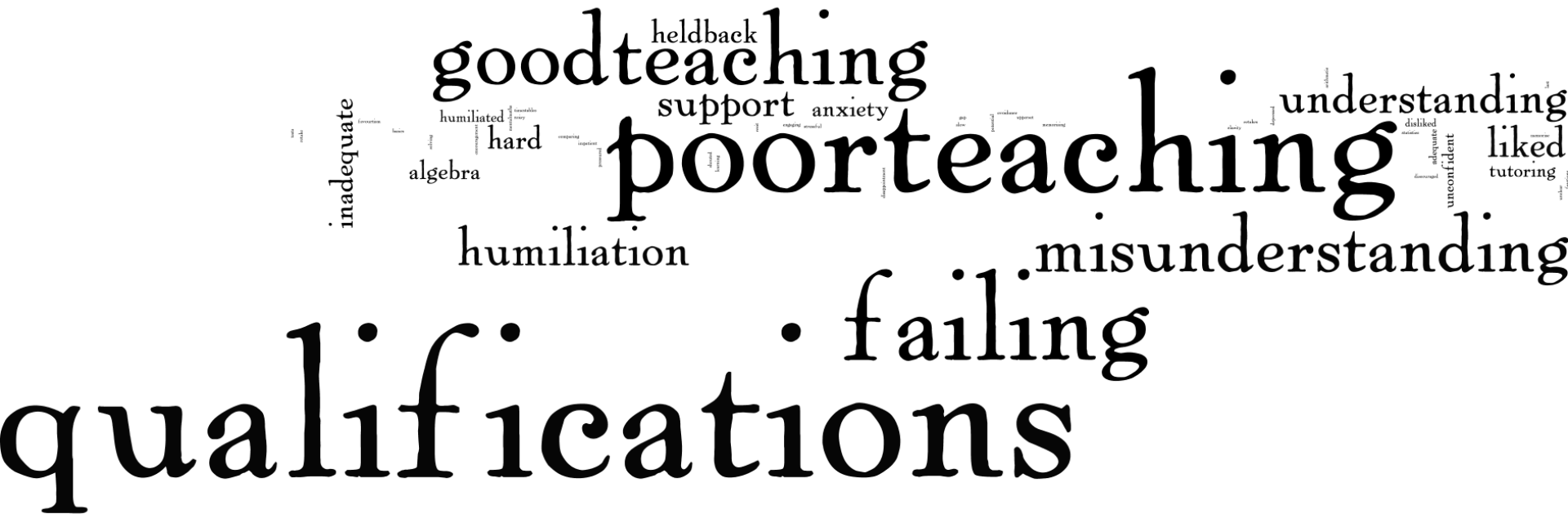
- Consider an approach or strategy you have used in an anxious or stressful situation.
- Discuss as much as possible with your neighbor the situation and your approach

Wordle for Q1



Hard, disliked, enjoyable, competent and valued

Wordle for Q2



Poorteaching > goodteaching, gaining qualifications!
disliked, enjoyable, competent and valued

Wordle for Q3



Assessment anxiety, embarrassment and humiliation

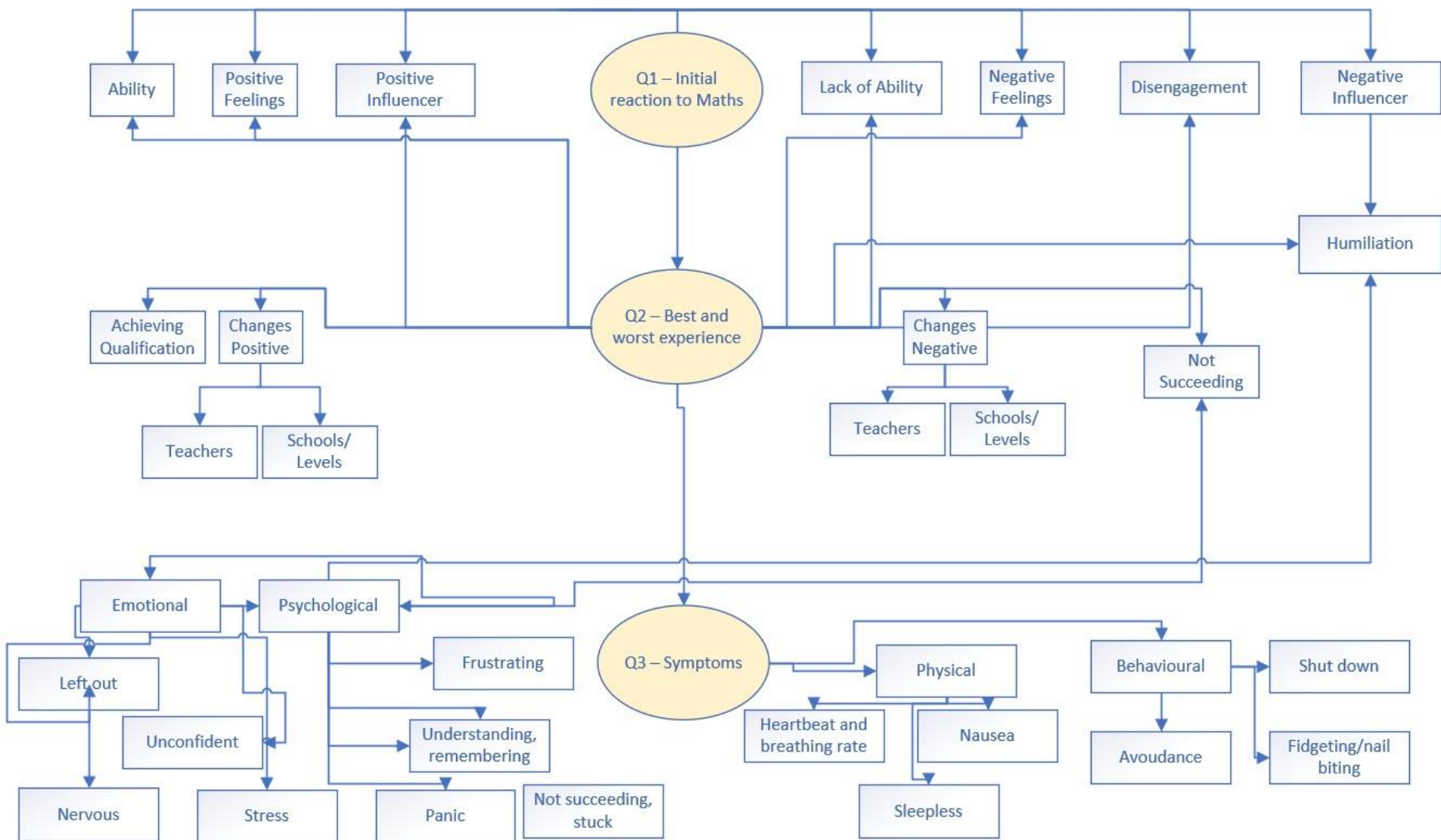
breathing



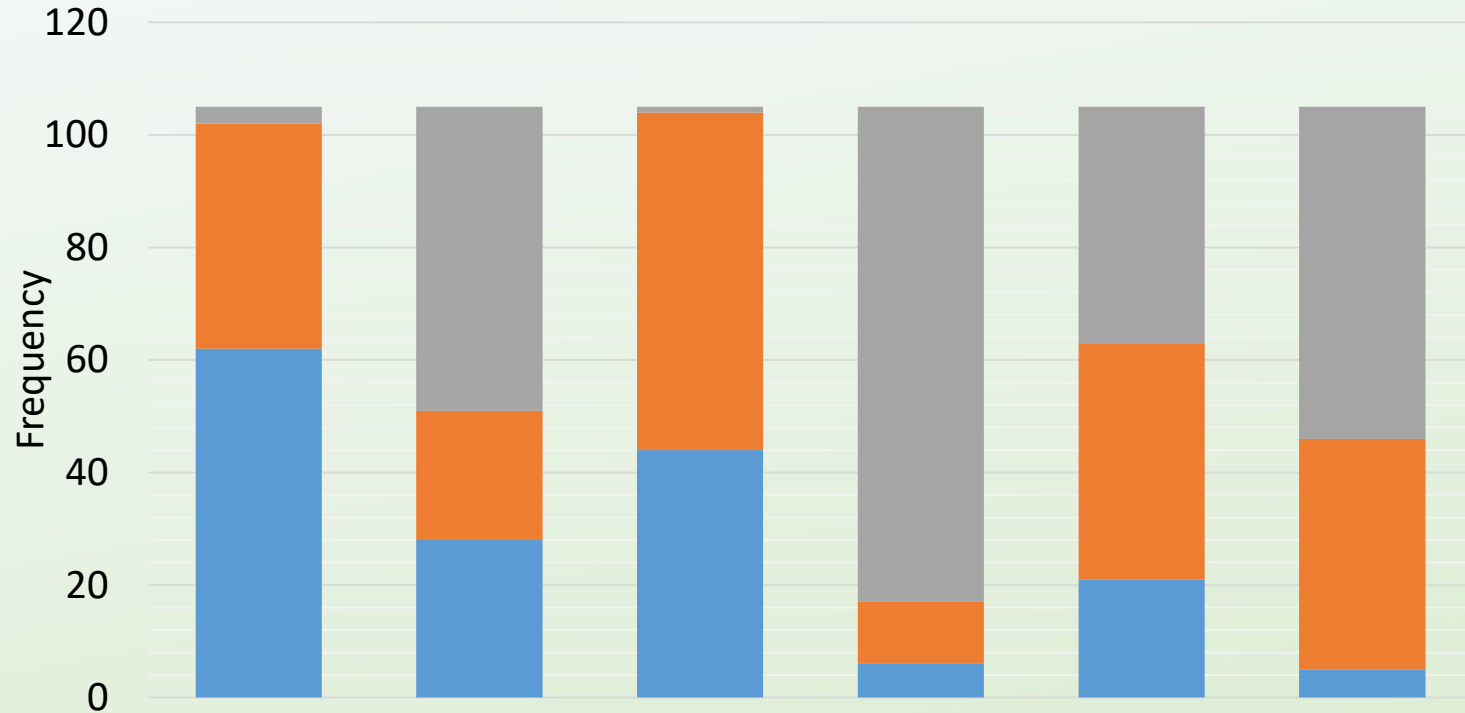
Data

Q1 What would have said to me about maths?		Poor Ability	Q1a - Avoided	Q1b - Poor Feelings	Q1c - Poor Self Esteem	Q1d - Effort Needed	Q1e - Poor People Infr	Q1f - Value A	Q2b W
Math was ok. Had to work very hard to achieve my goals	2	1	3	3	4		5		goodtea
Maths made me feel stupid. My dad used to call me stupid because I couldn't learn my timetables. My t	5	4	5	5	5	5	4		poorte
Hate maths, worry people judge because I struggle, struggle with it, rather not do it, prefer simple maths	5	4	5	4	3	5	4		retakes
I enjoy some aspects of maths but hate some as well	3	2	3	3			4		disliked
Maths is an interesting and useful subject that is needed in the daily life (some of it). I don't think I am g	4	1	1	4			5		tutoring
I only enjoyed maths if I had the hang of the topic. Overall, I do not enjoy doing maths because I stress	4	1	3	4	4		4		poorte
I am so bad in maths.	5	2	5	5					poorte
Love maths, wish I was better at it. Want to study higher level.	2	1	5	4	2				failing
Maths is quite difficult, I haven't carried out maths for a while, I'm really bad at fractions.	4	4	4	4	4				algebra
I find the more difficult aspects too complex eg. When it has multiple steps to get the answer.	2	1	1	2	4				poorte
Maths is good if you put more effort to learn and follow the formula. But if you leave math one day, ma	1	1	1	1	4		5		gap faili
I am ok with maths. If I put myself in practice, I pass my maths. To pass maths I need to commit myself	1	1	1	1	4		4		failing d
I like maths.	1	1	1	1					adequat
Not keen on it. Enjoy longer questions. I'm OK at maths - have to physically work out the problem. Not	4	1	4	1	4				qualifica
I find maths hard. I don't like maths.	4		4		4				hard mi
I don't like maths. I find maths challenging.	4		4		4				hard mi
I do not feel confident with maths. I will avoid it at all costs.	4	5		5					qualifica
I struggled at maths but I enjoyed learning it.	4	1	1	1	5				
Maths is good, I love it.	5	1	1	1	1		5		qualifica

Student Reflections Chart



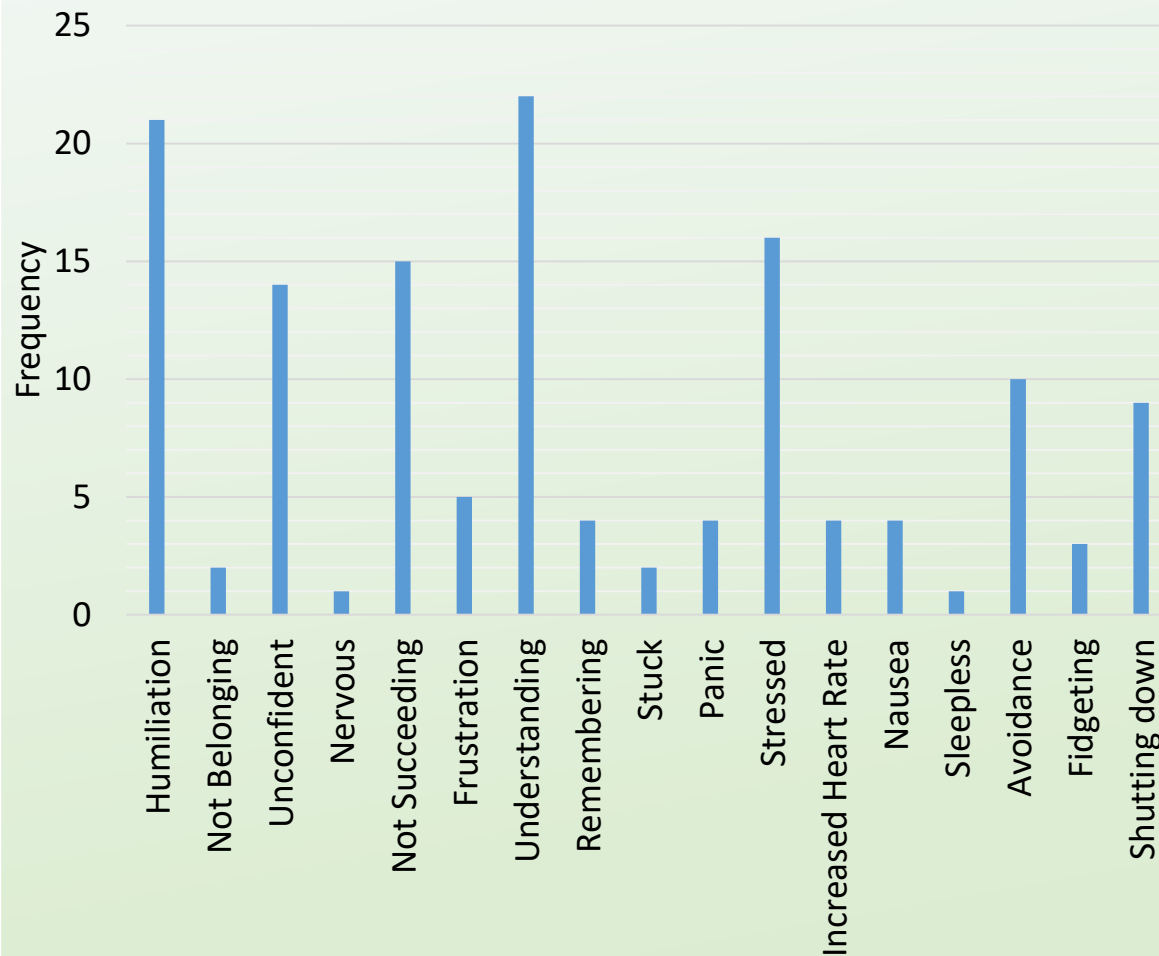
Q1 - Influences



Frequency	Ability	External Influence	Emotions	Transfer/ Change	Exams	Improved Ability
Negative	62	28	44	6	21	5
Positive	40	23	60	11	42	41
Missing	3	54	1	88	42	59
Total	105	105	105	105	105	105

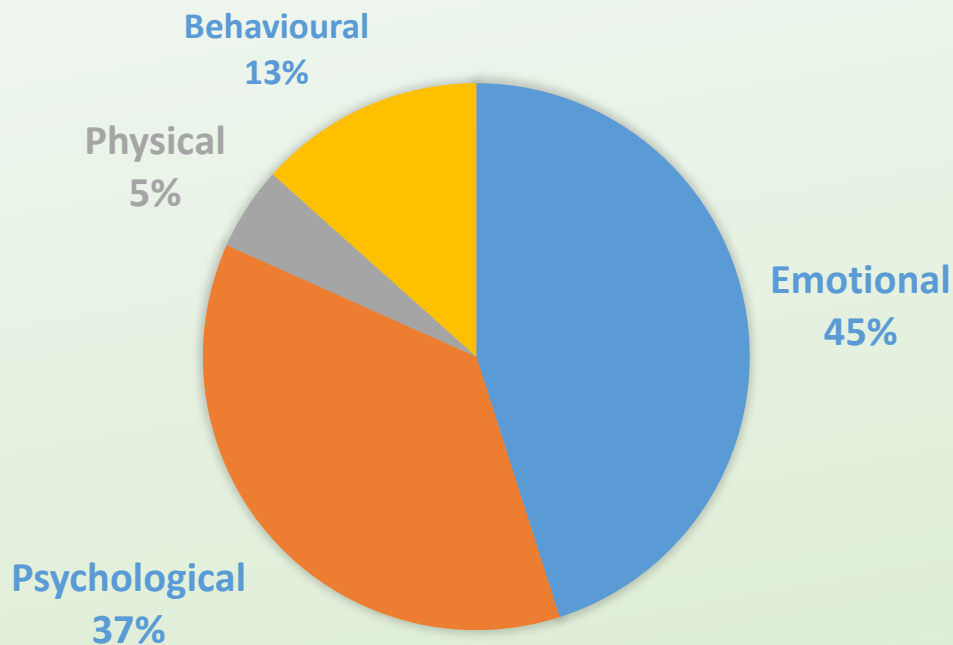
Q2 - Symptoms Manifested

Manifestations	Frequency
Humiliation	21
Not Belonging	2
Unconfident	14
Nervous	1
Not Succeeding	15
Frustration	5
Understanding	22
Remembering	4
Stuck	2
Panic	4
Stressed	16
Increased Heart Rate	4
Nausea	4
Sleepless	1
Avoidance	10
Fidgeting	3
Shutting down	9



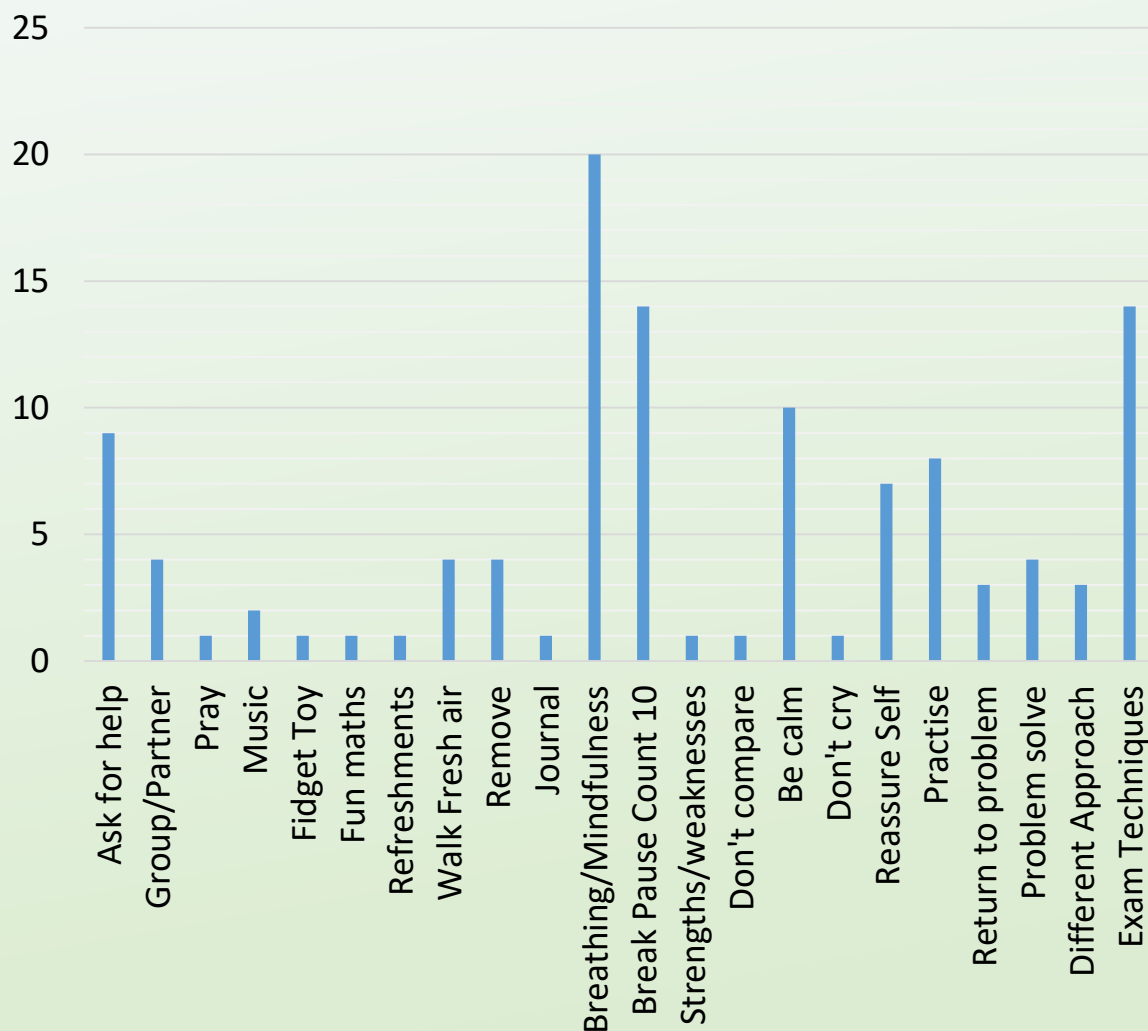
Q3 - Symptoms

Symptoms	Total
Emotional	64
Psychological	52
Physical	7
Behavioural	19



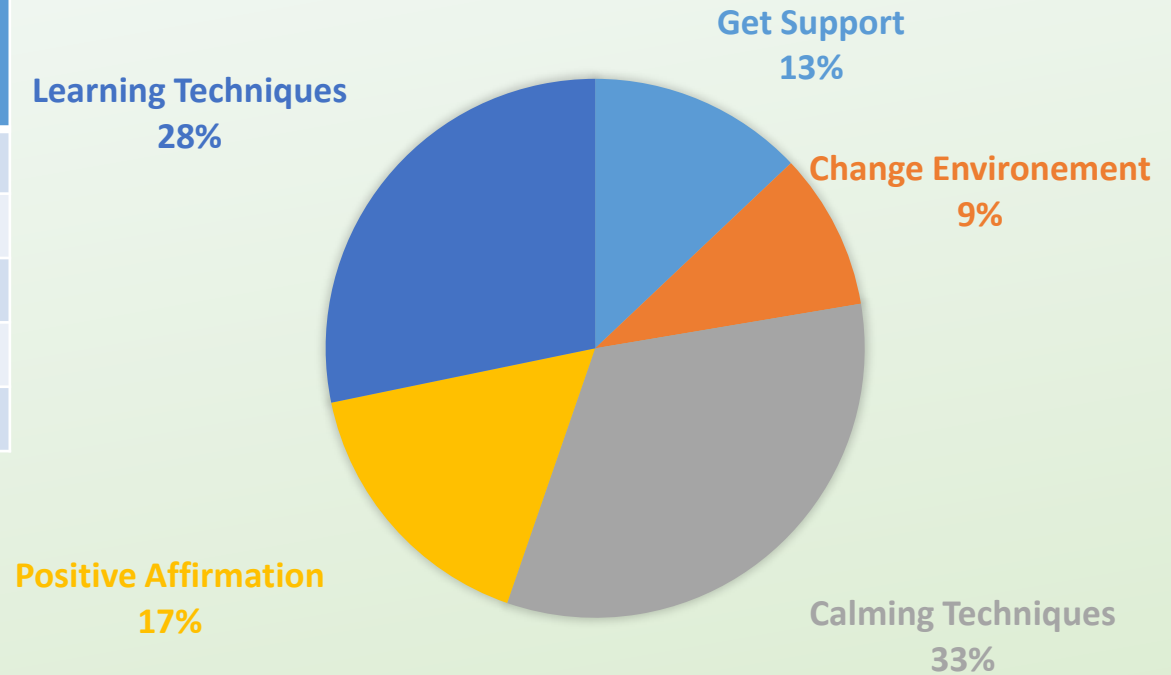
Q4 - Specific Strategies

Specific Strategies	Frequency
Ask for help	9
Group/Partner	4
Pray	1
Music	2
Fidget Toy	1
Fun maths	1
Refreshments	1
Walk Fresh air	4
Remove	4
Journal	1
Breathing/Mindfulness	20
Break Pause Count 10	14
Strengths/weaknesses	1
Don't compare	1
Be calm	10
Don't cry	1
Reassure Self	7
Practise	8
Return to problem	3
Problem solve	4
Different Approach	3
Exam Techniques	14



Q4 - Major Strategies

Strategies Used	Frequency
Get Support	11
Change Environment	8
Calming Techniques	28
Positive Affirmation	14
Learning Techniques	24



Comments Group 1

1. What would you have said to me about maths?
 - I do not feel confident with maths. I will avoid it at all costs.
2. Write down your best or worst experience of maths teaching so far?
 - Best, there hasn't been any great experiences with maths. I guess, passing with a C in my GCSE's. Worst, tests, previous maths classes (algebra).
3. The last time you felt these kinds of symptoms and how that related to the last time you did maths? If at all.
 - Last night when I was filling in the **maths quiz online** I felt uneasy about some questions. Not knowing where to start when taking maths tests. Nausea, irregular heart beating.
4. Consider an approach or strategy you have used in an anxious or stressful situation.
 - Avoidance from the situation, push the question away, make up my own method of solving math questions, writing half questions.

Comments Group 2

1. What would you have said to me about maths?
 - I'm not a particular fan of maths. Not understanding why pi 3.14 example. But I do enjoy some aspects of it when I totally do understand the steps of long equation equal satisfaction
2. Write down your best or worst experience of maths teaching so far?
 - Best, there hasn't been any great experiences with maths. I guess, passing with a C in my GCSE's. Worst, tests, previous maths classes (algebra).
3. The last time you felt these kinds of symptoms and how that related to the last time you did maths? If at all.
 - During maths exams watching everybody else in the exam was all writing systematically in silence creates of the feeling of being left behind and anxious.
4. Consider an approach or strategy you have used in an anxious or stressful situation.
 - Focus on myself only do not compare my own progress with others.

Comments Group 3

1. What would you have said to me about maths?
 - I barely passed A level maths but did well at GCSE.
2. Write down your best or worst experience of maths teaching so far?
 - Year 10/11 teacher ignoring all my input and accusing me of disrupting when helping classmate.
3. The last time you felt these kinds of symptoms and how that related to the last time you did maths? If at all.
 - Very stressed, felt sick before the A-level exams. Often take breaks to do simple maths during essay writing. Sudoku's are great.
4. Consider an approach or strategy you have used in an anxious or stressful situation.
 - Move on, work through and go back to it.

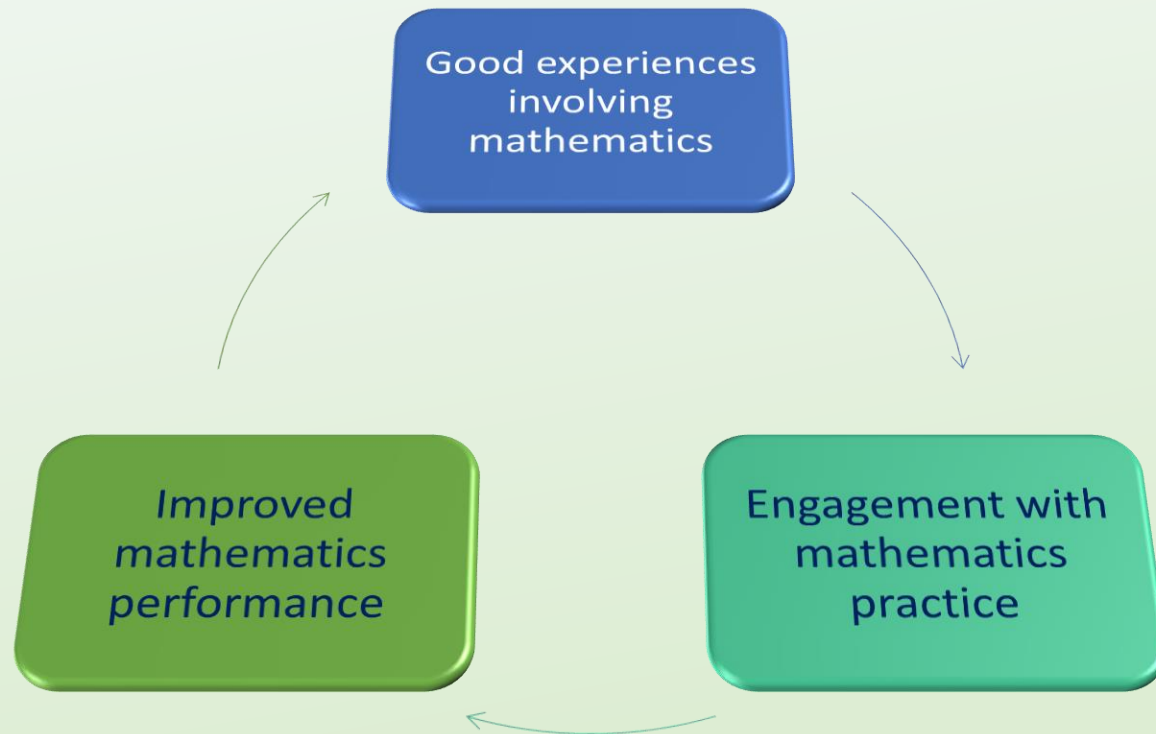
Take away

- 7-11 breathing exercise
 - help you to quickly regain a sense of calm during difficult situations
 - regular use helps to keep your stress levels low
 - particularly useful during times of ongoing pressure such as exams

Take away

- Listening and hearing
- Ask how necessary is it to assess - is there a better way ?
- GCSE good, A Level bad = acknowledging 'reach'
- Identification for empowering rather than restricting

Turning it around - Positive Cycle



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