



Success for Adult Students is on the RISE: The Transformation of Math Anxiety

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Purpose

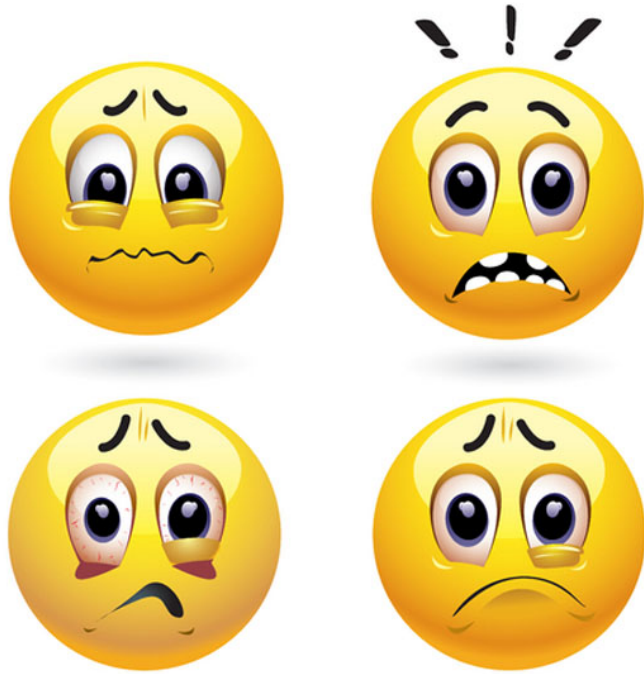
- To provide background information on the emotion of anxiety.
- To provide some strategies on reducing math anxiety in the classroom.
- To understand math anxiety is REAL!
- To provide information for instructors to help build confidence when handling students experiencing math anxiety.
- To provide resources to integrate instructional tools to minimize math anxiety.

WE have the POWER to Change Lives!



On the RISE.....

- North Carolina: co-requisite remediation model for our Dev. Ed. courses
- We began pilots in Spring 19
- GPA is our predictor of placement
- We are now running
 - Co-requisite for Math and English 111 (2.2 - 2.799)
 - **Transition Math & English Courses (GPA below 2.2 or Students who are out of high school more than 10 years (placing into this course))**



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Math Anxiety is REAL!

ANXIETY.




DON'T BE NERVOUS.

Anxiety

Write down a time you experienced anxiety on the paper provided at your table.

- Share your experiences with others
- Did you know that you were experiencing anxiety?
- How did you know you were experiencing anxiety?
- What did you feel? Physically & Emotionally?

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- Now let's have some fun.....
 - You are asked to take notes during this video?
 - Please refrain from making any comments while this video is playing. Lecture
Example

Any Emotions?

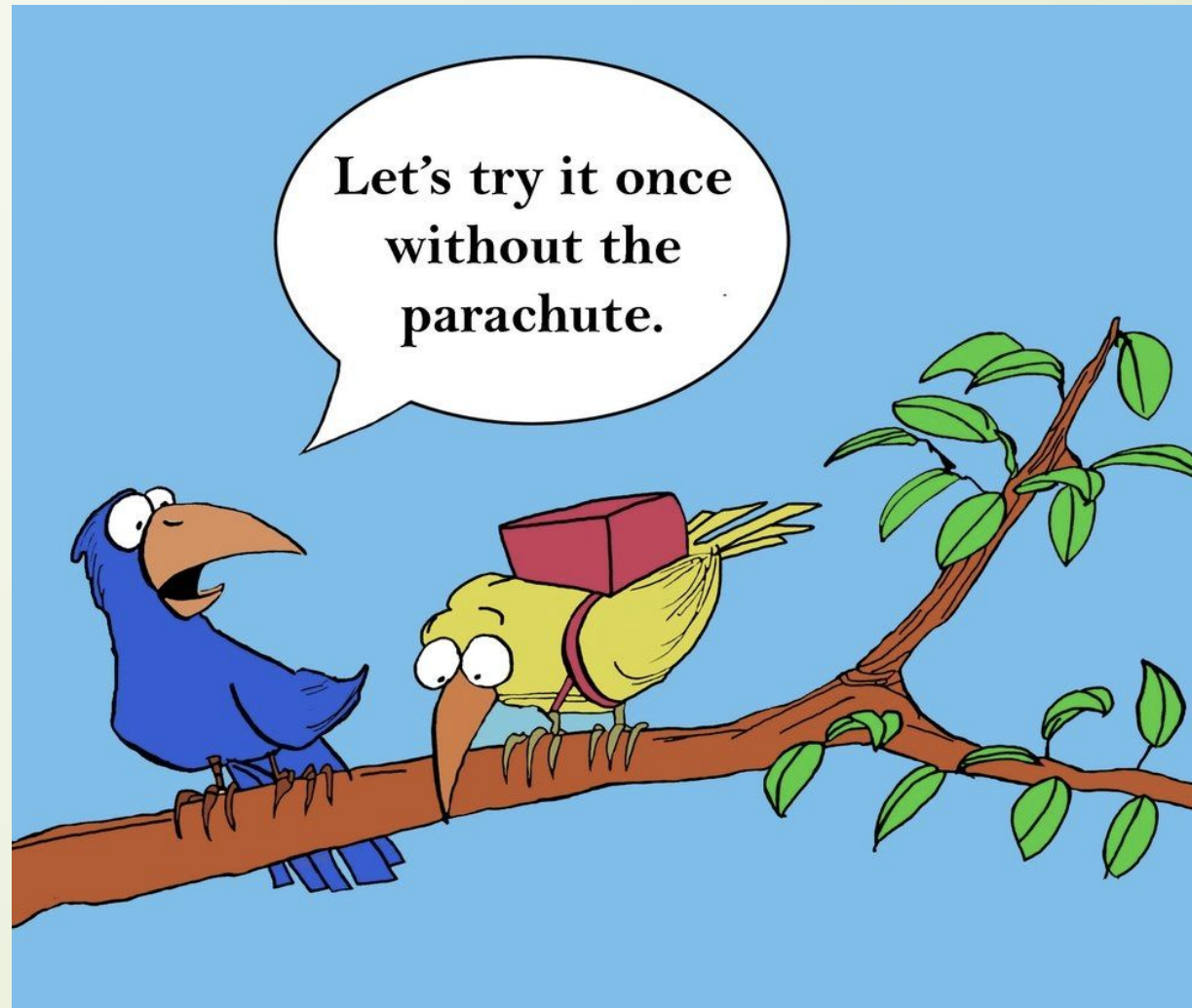
- How did you feel during the video?
- How did you feel knowing that taking notes was required to complete an assignment?
- Provide one word that described the emotion you felt during the video.....



$$\frac{\partial}{\partial a} \ln f_{a, \sigma^2}(\xi_1) = \frac{(\xi_1 - a)}{\sigma^2} f_{a, \sigma^2}(\xi_1) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(\xi_1 - a)^2}{2\sigma^2}\right)$$
$$\int_{\mathcal{R}_n} T(x) \cdot \frac{\partial}{\partial \theta} f(x, \theta) dx = M\left(T(\xi) \cdot \frac{\partial}{\partial \theta} \ln L(\xi, \theta)\right)$$
$$\int_{\mathcal{R}_n} T(x) \cdot \left(\frac{\partial}{\partial \theta} \ln L(x, \theta)\right) \cdot f(x, \theta) dx = \int_{\mathcal{R}_n} T(x) \cdot \left(\frac{\partial}{\partial \theta} \frac{f(x, \theta)}{f(x, \theta)}\right) \cdot f(x, \theta) dx$$

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Can you relate?



Define Math Anxiety?

- Fear of failure
- Feeling of inadequacy
- Feelings of tension, apprehension or fear that interferes with math performance
- Avoidance
- My head is about to explode
- "I do well in all my other classes..."






Causes of Math Anxiety

- Bad past experiences
- The teacher can be a factor
- Challenges with complexity of math concepts
- Challenges with Abstract Math
- Math as a “foreign language”
- Underprepared

Who am I?

- Mature
- Between the age of 36 and 40 years old
- Adult with responsibilities
- Self-directed learners
- Mid-life crisis

I am an Adult Student



“Having graduated from high school over thirty years ago, I was bewildered when I discovered that the chalk board had been replaced by a SMART Board, the instructor’s pointer has been replaced by a hand held beam, and students all around me began to open their laptops instead of taking out paper and pen for notes.”

Sincerely,

Anxiety!!

Symptoms of Math Anxiety?

- ❑ Sick to the stomach
- ❑ Sweaty Palms
- ❑ Rapid heart palpitations



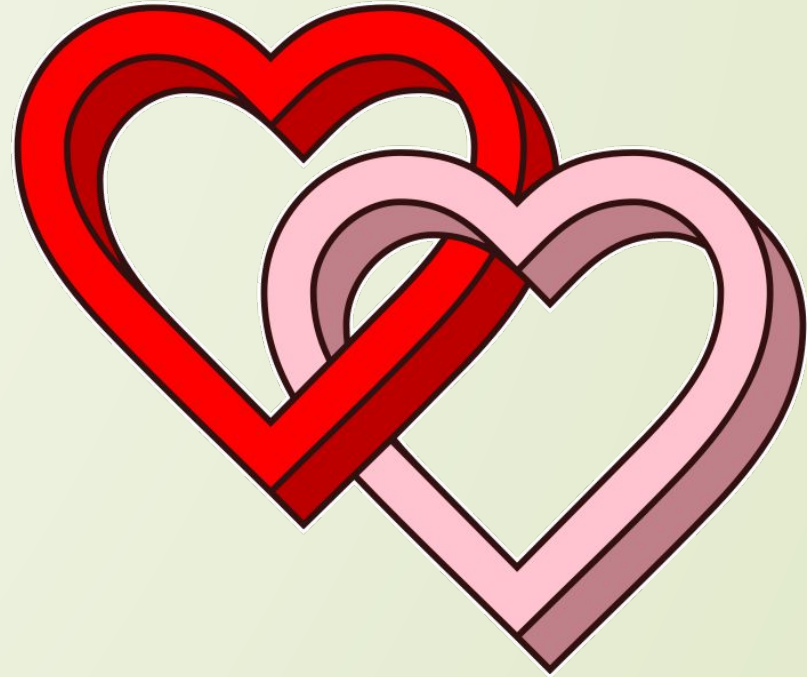
Adult Learners

- Bring a wide range of diverse experiences to the table
- Practical
- Andragogy: the art and science of helping adults learn
- Relevancy-oriented
- Unique way of learning
- Self-directed
- Goal-oriented

Can you relate?

Adult Learners need LOVE TOO!

- Motivation
- Support
- Reinforcement
- Retention
- Transfer of Learning
- Respect



Technique #1 to Reduce Math Anxiety...

- Relaxation Techniques

- 1. Tensing/Relaxation Method

- Put feet flat on the floor
- Grab underneath your chair with your hands
- Push down with your feet and pull up on the chair at the same time for about 5 secs
- Relax for 5 to 10 seconds
- Repeat if needed

Let's Try

Technique #2

- Palming Method
 - Close & cover your eyes using the palm of your hands
 - Prevent your hands from touching your eyes by resting the lower parts of your palms on your cheeks and placing your fingers on your forehead. Don't rub or touch your eyeballs.
 - Think of some real or imaginary scenes that are relaxing to you
 - Visualize this scene. Imagine you are actually there. Do this for 2 mins.

Let's Try







Technique #3

- Deep Breathing Technique
 - Inhale slowly and deeply through your nose by filling up the bottom of your lungs first
 - STOP for a few seconds and hold your breath
 - Exhale slowly through your mouth pretending like you are whistling out the air

Let's Try



Techniques #4

- Eliminate Negative Thoughts
 - Write down up to three negative thoughts about yourself or a situation.
 - Now.....
- Manage Self-Talk
 - Saying the same positive words over and over
 - One or Two words to bring up positive thoughts and feelings
 - Should be automatic

Technique #5

Using a Stress Ball while taking a test...



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Instructor Strategies

- Faculty must improve their methodologies and broaden their horizons when dealing with non-traditional students and math anxiety
- Provide a clear instructions
- Integrate Math Study Skills
- Provide a safe environment to make mistakes
- Use Technology to enhance learning
 - But be gentle!!



Study Skills for Math is Essential

- Time management
- Goal setting
- Using a Calculator
- Memory Aids
- Note-taking skills for Math
- How to study math

Building Self Confidence

- ❑ Provide Continuous Feedback
- ❑ Positive Reinforcement
- ❑ Corrections with alternative solutions into every class session
- ❑ Adults need to know WHY???
- ❑ Concepts reinforced and discussed





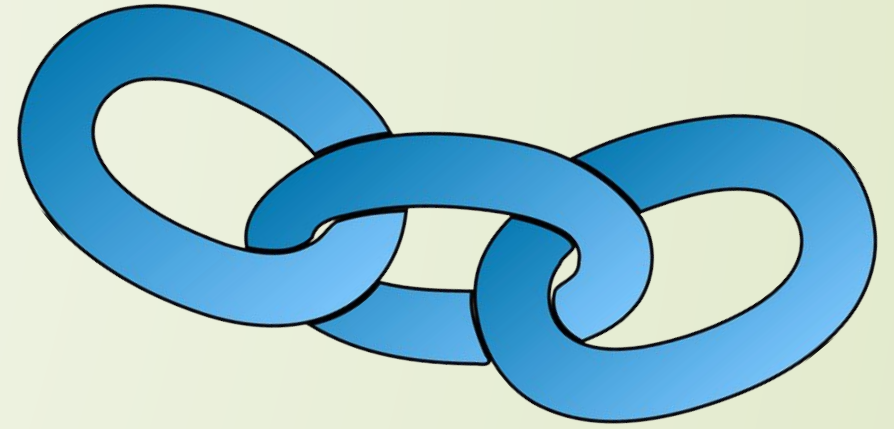
Math Anxiety Reduction Checklist

By Cynthia Arem in *Conquering Math Anxiety* 2nd edition

- I've reviewed and worked out lots of problems so I know my material out of context.
- I know the format and content of my upcoming math exam.
- I know how many questions will be on my exam and its duration.
- I've given myself several practice exams.
- On practice exams, I've noted areas of difficulty so I can strengthen them.
- I've analyzed my past pattern of typical errors so I can alert to them on my exam.
- I've gotten 7 to 8 hours of sleep in the days prior to the exam.
- I've kept up a regular program of moderate exercise.
- I've practiced relaxation exercise along with positive visualization in the days and the half-hour before the exam.
- I've eaten a small meal of low-fat protein 1 to 2 hours before the exam and avoided too much caffeine.
- I'll arrive at the exam on time and avoid talking with others.
- Throughout the exam, I'll remain calm, relaxed, and positive, checking my breathing often.
- I will say positive self-statements to myself and push away all disturbing or distracting thoughts.
- I will write out all my formulas and key ideas on the top corner of my exam sheet before beginning the test.
- I'll quickly read through the exam, note point values, and schedule my time accordingly.
- I'll proceed comfortably throughout the exam, working first on the problems that come most easily to me.
- I'll carefully read the directions to all problems and circle significant words to avoid misinterpretation.
- After finishing the exam, I'll check my answers, proofread for omissions, and check for my typical errors.
- I'll leave and reward myself for a job well done!

WHY DO YOU MATTER?

- You are the link
- You break down barriers
- You have the **POWER**





What's happens now?

TRANSFORMATION of MATH ANXIETY...

- Continue professional development on math anxiety
- Create positive energy when teaching Math
- Review basic skills to build confidence
- Engage students in the learning process



Discussion Time



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