

Mathematics Anxiety and Contemplative Pedagogy at the Post-Secondary Level

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Research Questions

HOW can contemplative pedagogy support a mandatory post-secondary mathematics course?

Does it [contemplative pedagogy]:

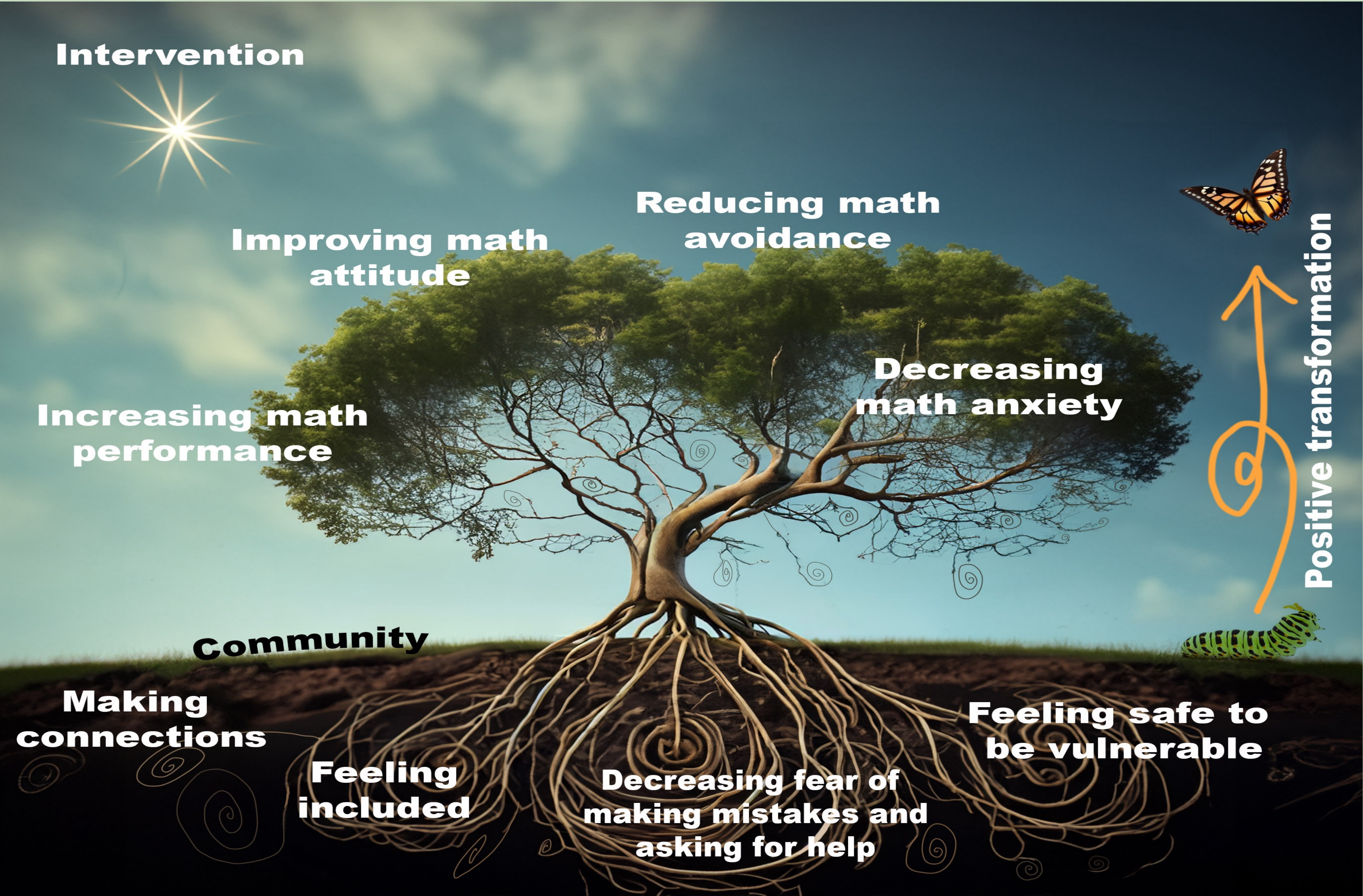
1. Decrease math anxiety?
2. Reduce math avoidance?
3. Improve math attitudes?
4. Increase math performance?

Math anxiety: Emotional or physiological response in the presence of math.

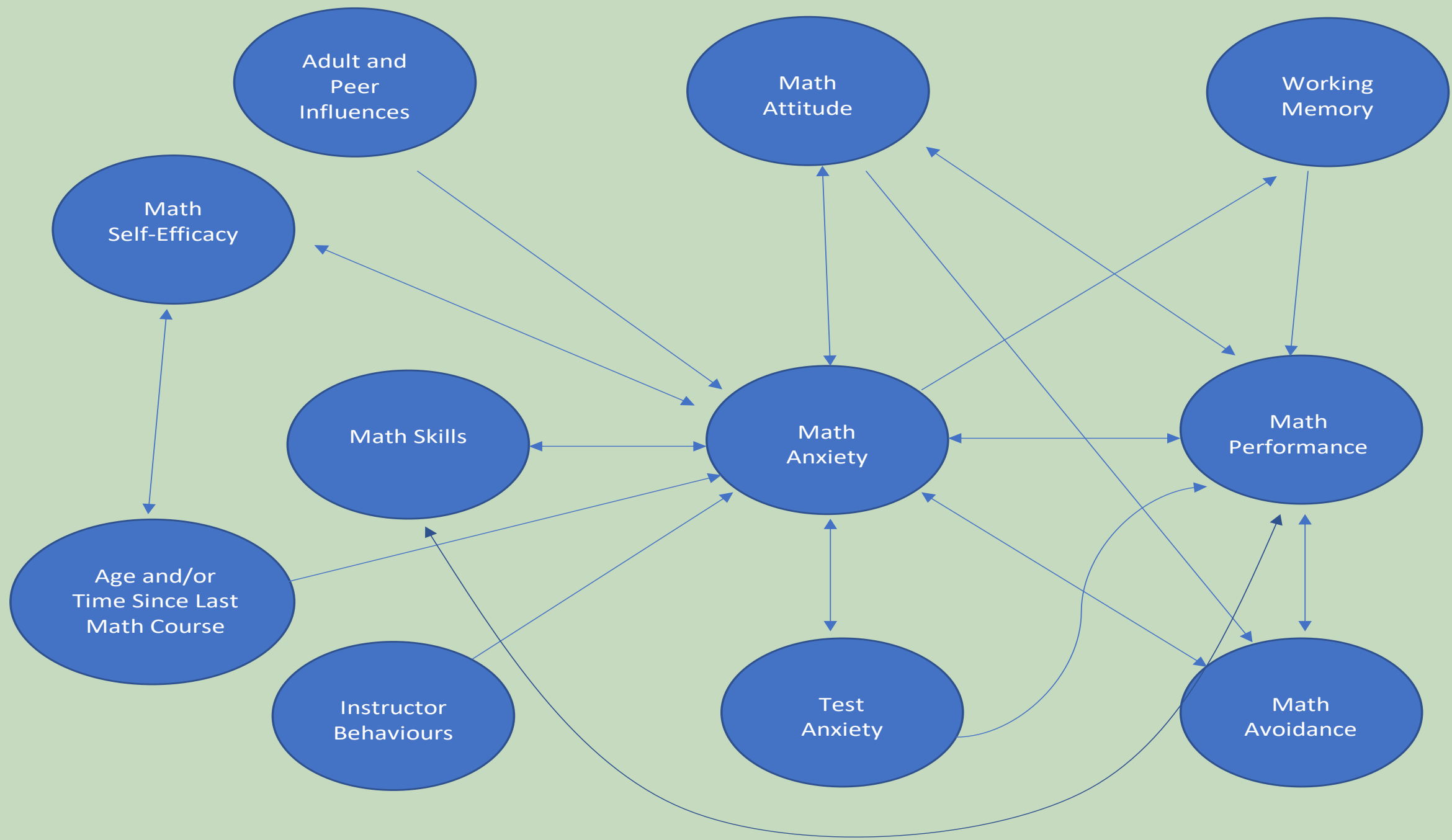
Contemplative pedagogy: a form of experiential learning that “presumes that the capacities of sustained voluntary attention, emotional balance, insight, and compassion are able to be developed through practice...” (Zajonc, 2009, p. 93)

Section	Gender	International	Mature	Racialized	Physical or Learning Disability
Control (n = 36)	20/36 Female (56%)	18/36	5/36	20/36	4/36
	16/36 Male (44%)	(50%)	(14%)	(56%)	(11%)
Intervention (n = 32)	17/32 Female (53%)	15/32	4/32	18/32	8/32
	14/32 Male (44%)	(42%)	(13%)	(56%)	(25%)
	1/32 Non-Binary (3%)				

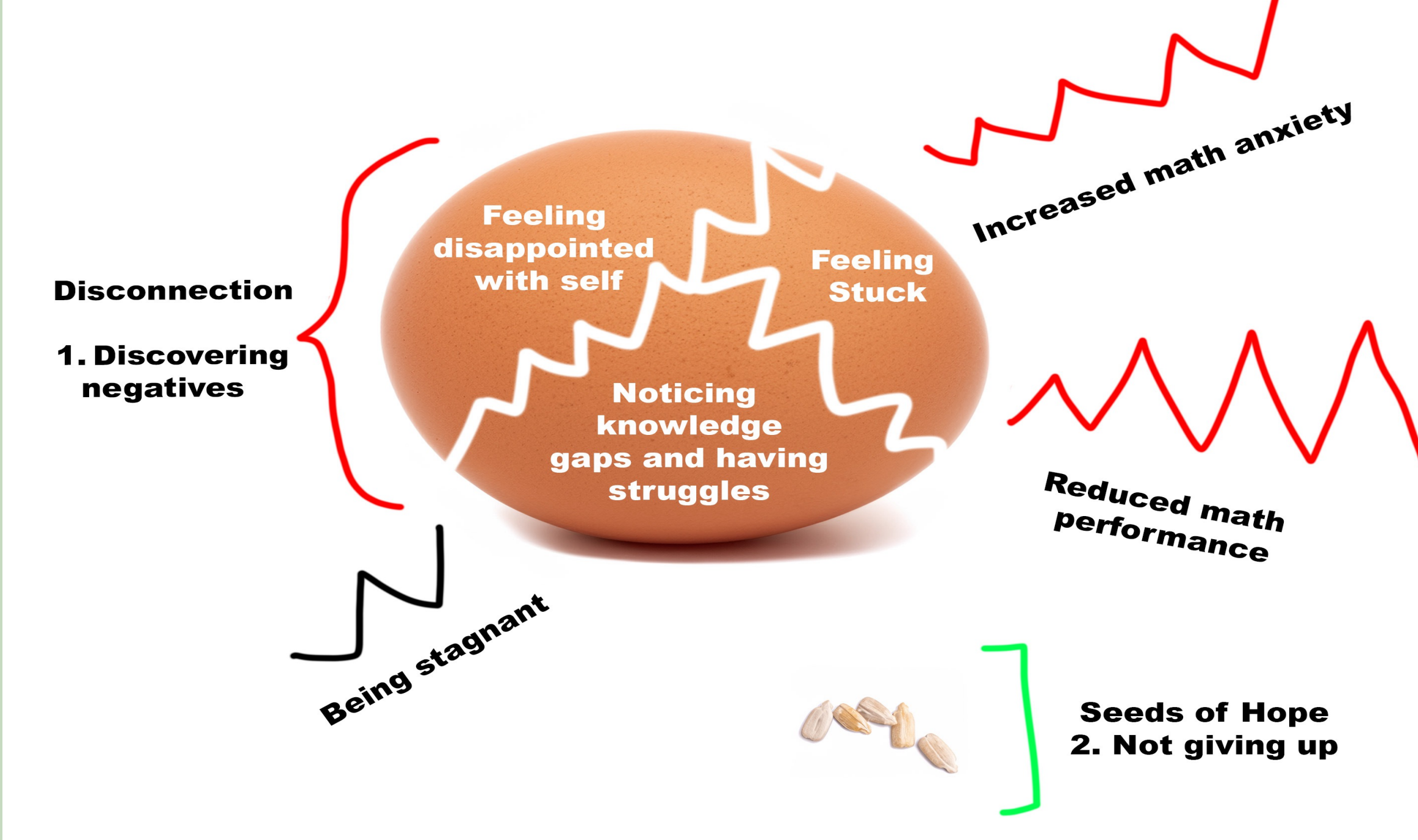
Intervention Group Triangulation



Causes and Consequences of Math Anxiety



Control Group Triangulation



References

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Intervention Group Interview Quotes

“By focusing less on my anxiety and fear of math, I learned it is okay to make mistakes when doing math, it doesn’t make you dumb.” [CPMM37, Intervention]

I felt supported by others in the class by students and [the teacher]. I knew that they wouldn’t make fun of me if I screwed up. I put my hand up more after realizing that. I’m not afraid to try.” [CPMM53, Intervention]

“I feel more confident, so I need to rethink my major. I’d really like to become a doctor. I think I can do it now.” [CPMM49, Intervention]

“Math really is everywhere. I feel I can walk towards it instead of running away.” [CPMM53, Intervention]

“After this class I will not shy away from math, but instead look for opportunities to include it into my life” [CPMM61, Intervention]

“I felt more relaxed going into a test. I was still nervous, but my heart wasn’t racing.” [CPMM41, Intervention]

“I didn’t blank after breathing. Yes! [big smile]” [CPMM68, Intervention]

“During the last class, my anxiety calmed down. I am getting better at it.” [CPMM42, Intervention]

“The practices in this class helped me to realize that a big part of how I feel about math is the environment. The environment is what sets the students up for failure or success and this year was a success” [CPMM47, Intervention]

“Hearing others struggle with the same concept or helping me learn the concept I was struggling with was helpful and I didn’t feel ‘stupid’ or ‘incompetent’ but rather grateful and less alone.” [CPMM54, Intervention]

“I have a better understanding of how mathematics is connected to so much of a person’s life. Pausing and breathing helped with that. It’s grounding. I can use these connections and expectations to pause and focus on the here and now.” [CPMM57, Intervention]

Methodology

Grounded theory, rooted in Glaser and Strauss (1967), with Charmaz’ (2006) spin.
Problem: Mandatory mathematics and contemplative pedagogy, with a focus on math anxiety.
Convergent mixed-method design, with control and intervention groups.

Stage 1 (Pre-Test)	Stage 2 (Post-Test)
Pre-FFMQ	Post-FFMQ
Pre-MARS	Post-MARS
Test 1 Grade	Final Exam Grade
Math Origin Stories	Individual Semi-Structured Interviews
Researcher Field Notes	