

A moment to breathe: How reflection can reduce teacher maths anxiety

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A Moment to Breathe



Word Cloud representing the most used words in teachers' reflections

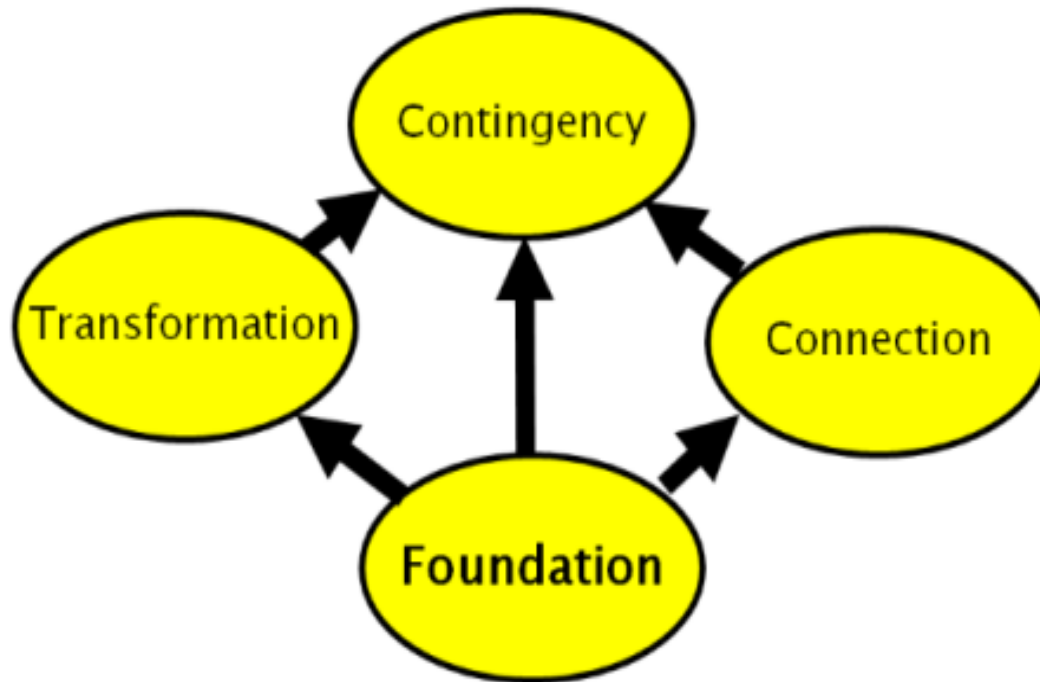
Why does teacher MA matter?

Schaeffer et al (2020) (n = 551)

- “Our findings strengthen the support for the hypothesis that teachers' math anxiety is one factor that undermines children's math learning”
- Replicates Beilock et al (2010)



Teacher Professional Development



The Knowledge Quartet: Rowland et al (2005)

Measures

Three participants completed pre- and post-intervention measures.

Quantitative

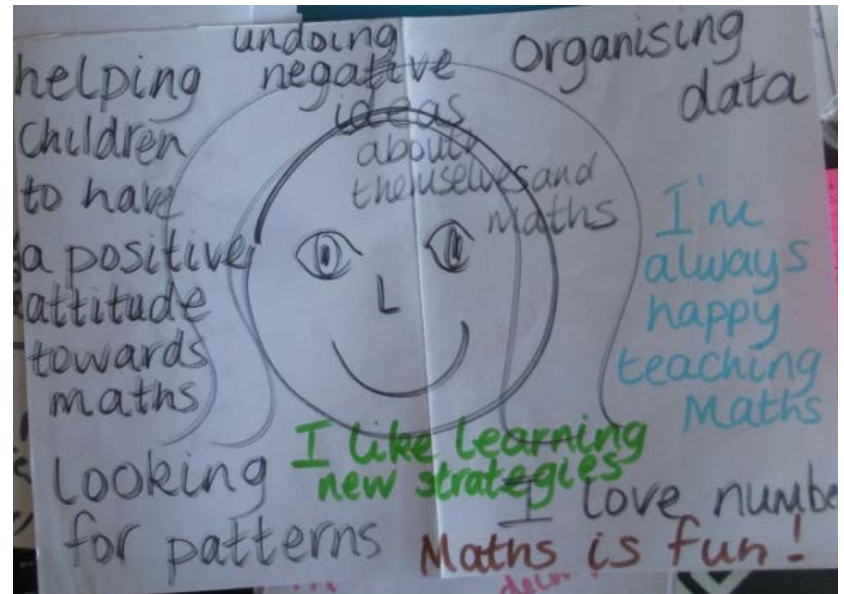
- MA: Hopko et al (2003)
- General Teacher Self Efficacy: Bandura (reproduced by Ohio State University, 2017)
- Teacher Self Efficacy for Maths: Rushton et al (2016)



Measures

Qualitative

- Task: draw yourself doing maths
- Semi structured interviews
- Teaching episode recordings
- Joint reflection recordings
- Teacher and researcher critical incident notes



Intervention



1. Record yourself teaching
2. Watch the recording
3. Meet your partner and discuss
4. Repeat steps 1-3 until you have completed four cycles.

Findings

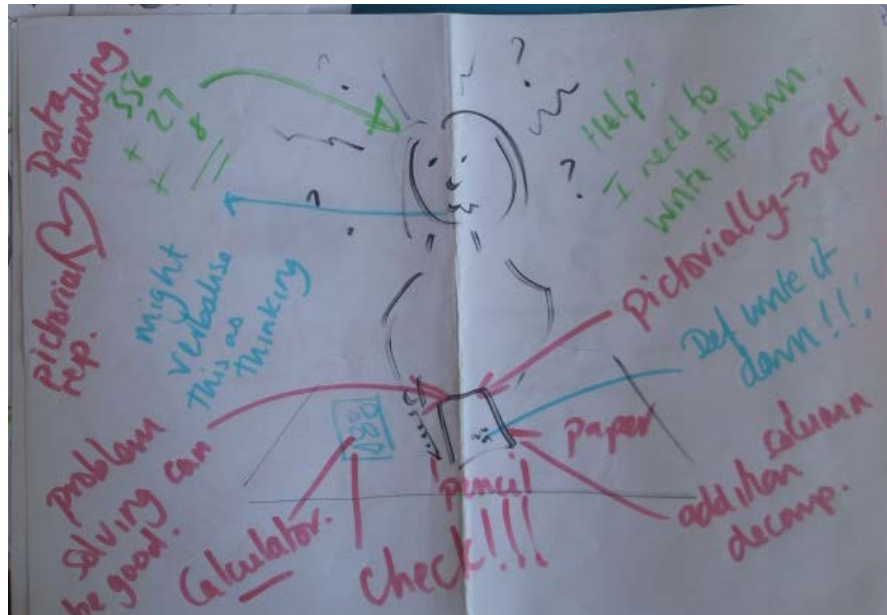
Participant	Maths Anxiety	General Teaching Efficacy	Maths Teaching Efficacy
1 (Lowest MA at start)	Increased by 13% (15 to 17)	Increased by 2% (negligible)	Increased by 7%
2	Decreased by 38% (16 to 10)	Increased by 21%	Increased by 28%
3 (Highest MA at start)	Decreased by 18% (17 to 14)	Increased by 2% (negligible)	Increased by 6%

Use of terminology was referenced most often (20% of teachers' comments and 22% of researcher's).

Findings

Participant 2

Before



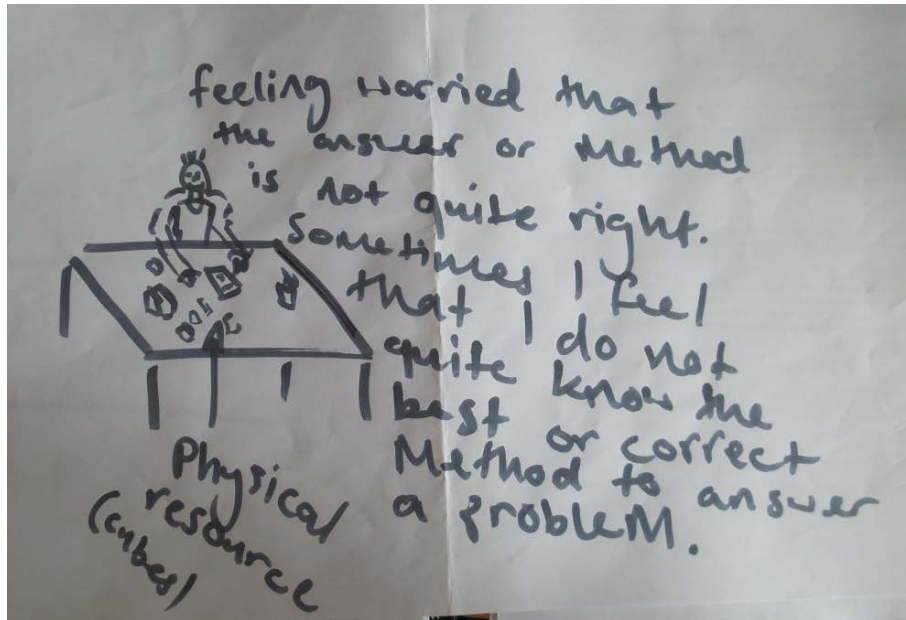
After



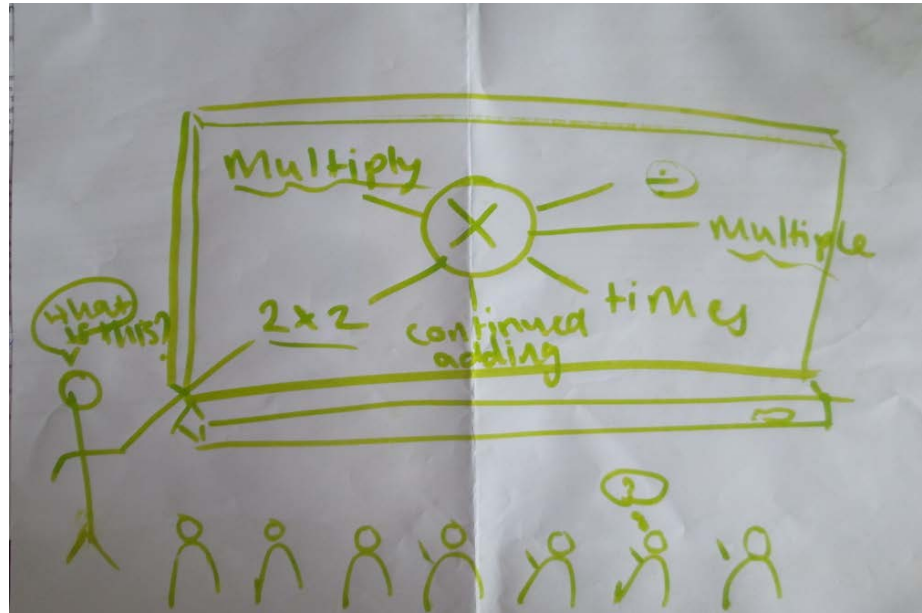
Findings

Participant 3

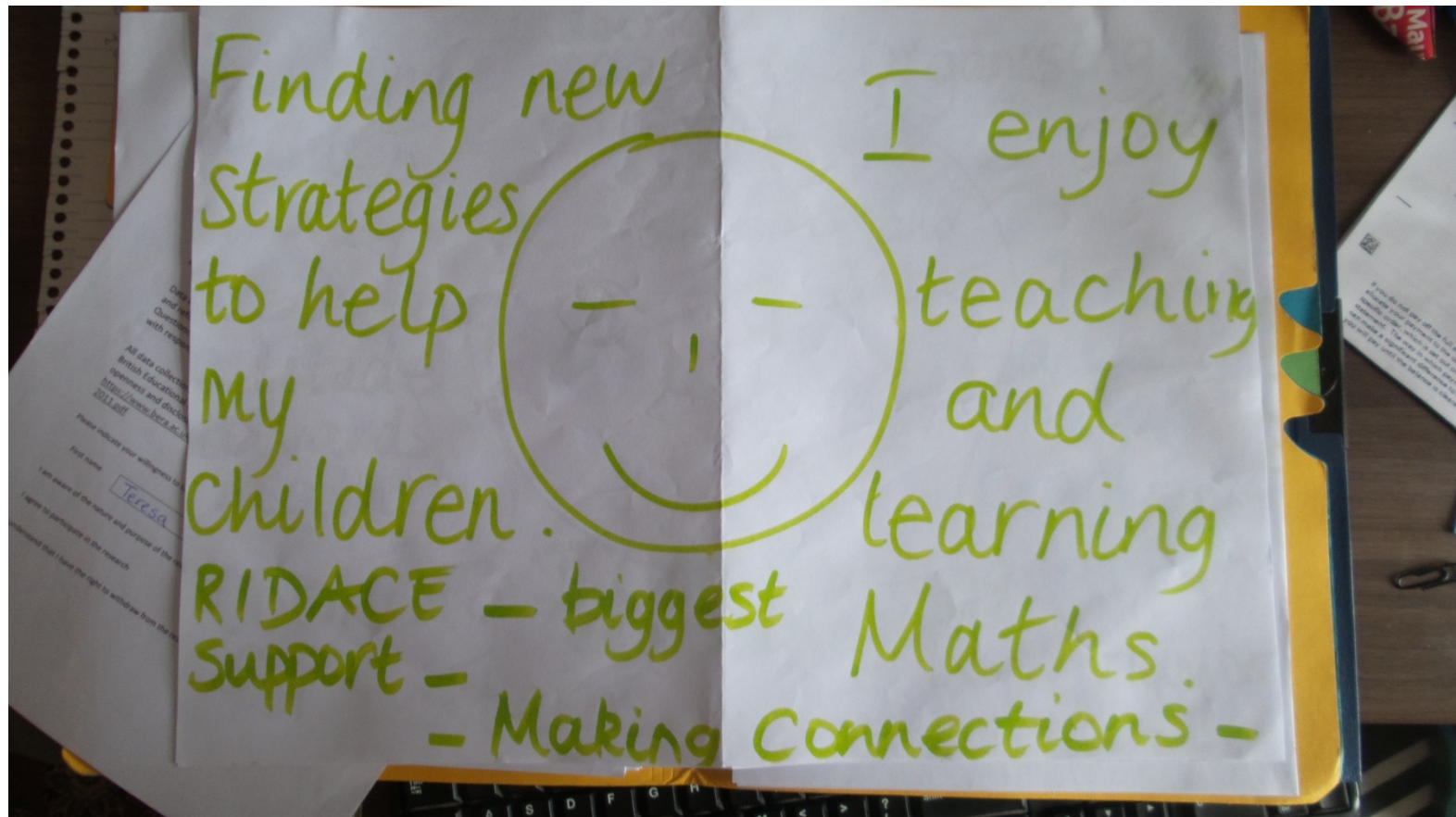
Before



After



Summary

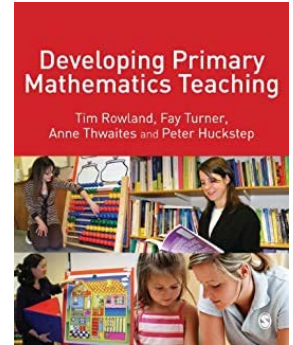


Conclusion & Limitations

“While more research is needed to determine when, how and for whom such an approach might be effective, it seems to be possible to reduce teacher MA using relatively modest, but carefully designed, interventions” (Cosgrove, 2021).



Resources & References



The Knowledge Quartet

Book: Rowland, T. (2009). *Developing primary mathematics teaching: Reflecting on practice with the knowledge quartet* (Vol. 1). Sage.

Website: <http://www.knowledgequartet.org>

References

Beilock, S.L., Gunderson, E.A., Ramirez, G. and Levine, S.C. 2010. Female teachers' math anxiety affects girls' math achievement. *Proceedings of the National Academy of Sciences*, 107(5), pp.1860-1863.

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Ohio State University,. 2017. *Bandura's Instrument: Teacher Self-efficacy Scale*. (Online) Available at <https://cpb-us-w2.wpmucdn.com/u.osu.edu/dist/2/5604/files/2014/09/Bandura-Instr-1sdm5sg.pdf>

Rushton, S.J., Hadley, K.M. & Stewart, P.W., 2016. Mathematics Fluency and Teaching Self-efficacy of Teacher Candidates. *Journal of the International Society for Teacher Education*, 20(2).

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Proceedings & Blog

Reducing mathematics anxiety in primary school teachers through collaborative reflection using the knowledge quartet. <https://bsrlm.org.uk/wp-content/uploads/2018/10/BSRLM-CP-38-2-05.pdf>

Blog Post: <https://www.bera.ac.uk/blog/a-moment-to-breathe-how-reflection-can-reduce-teacher-maths-anxiety>