

# Micro Steps, Macro Impact:

using microteaching as an authentic tool within primary maths teacher training



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Kirsty Bell & Simon Sheard  
University of Sunderland

# WHAT IS MICROTEACHING?

Microteaching breaks complex teaching behaviours into smaller, manageable components, making it easier for trainees to practice and refine skills.

Originates from the 1960s work of Dwight W. Allen at Stanford University.

Grounded in theories emphasising practice, feedback, and reflective learning

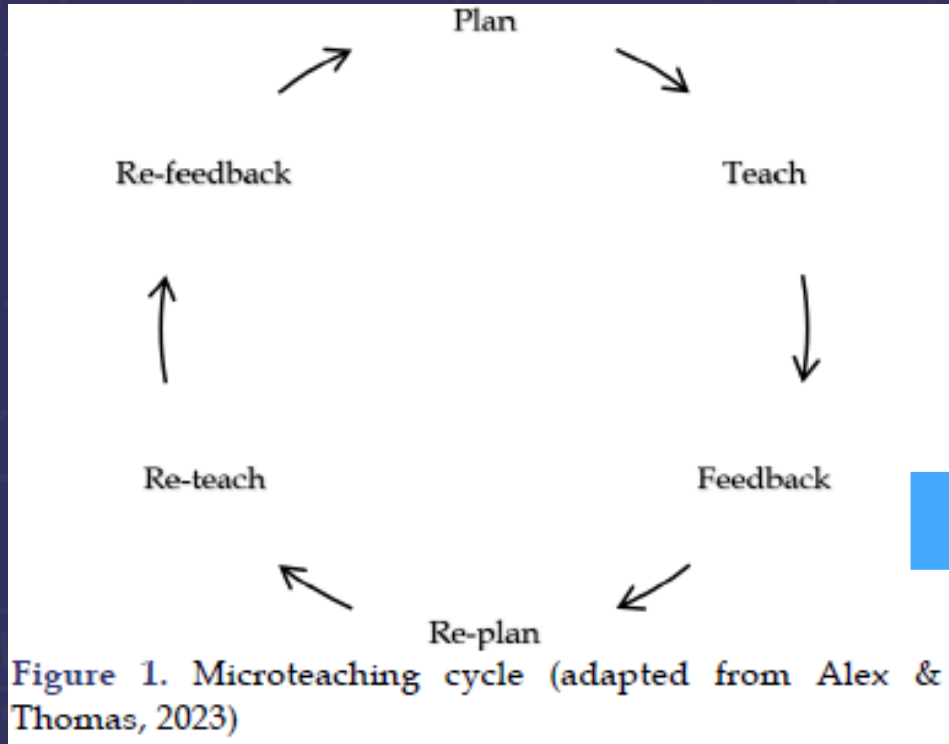


Figure 1. Microteaching cycle (adapted from Alex & Thomas, 2023)

Microteaching should not end at skill development stage in a laboratory setting but should provide opportunities for trainees to practice those skills (Perlberg, 1972)

*from Mukuka & Alex (2024)*

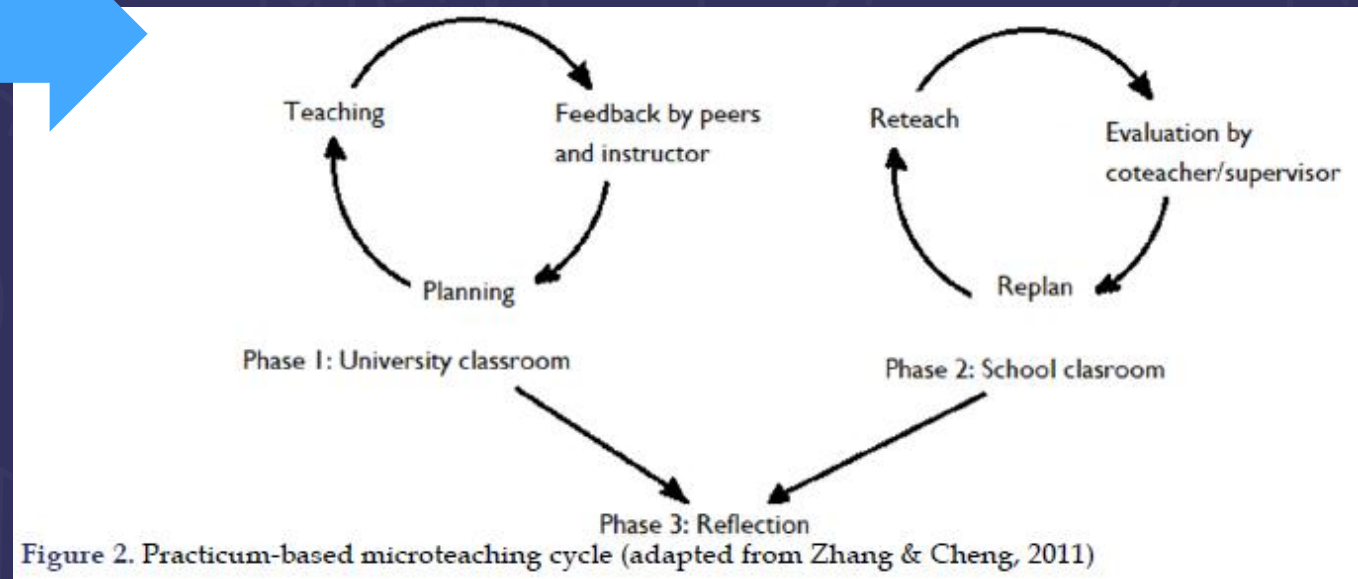


Figure 2. Practicum-based microteaching cycle (adapted from Zhang & Cheng, 2011)

# WHAT DOES RESEARCH TELL US?

Iliasova, L. et al. (2025)

In considering research from 2006–2023 it was found that:

- Microteaching is consistently linked to positive outcomes in teacher preparation.
- Trainees report gains in pedagogical skills, confidence, and reflective capacity.
- The review calls for more research directly capturing trainees' own perspectives



# WHAT DOES RESEARCH TELL US?

Mukuka, A., & Alex, J. K. (2024)

1. Microteaching (MT) is an effective strategy for building up technological pedagogical content knowledge
2. MT has been found to be a significant enhancer of trainee teachers' self-efficacy beliefs about the teaching of mathematics
3. MT has perceived worthwhile in building up trainee teachers' pedagogical and subject matter knowledge
4. MT is a useful technique for identifying the unique needs of each trainee teacher and ensuring that concerns are addressed before actual teaching
5. Giving pre-service teachers the chance to see lessons of their peers improves their oral and written communication skills.



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# CAUTIONARY NOTES

Certain pre-service teachers exhibit significant levels of anxiety brought on by fear of being reprimanded and being caught on camera. This causes some trainees to lose concentration on the work they are supposed to do.



The standard microteaching approach is used in a laboratory setting that is artificially controlled, which may not consider the distractions and student misbehaviour that may be present in a real classroom setting.

*from Mukuka & Alex (2024)*

# HOW DO WE USE MICROTEACHING?



**Microteaching is used periodically throughout our BA and PGCE programmes to allow trainees to practice specific elements of teaching in small groups, thus linking theory and practice in a familiar and low-stakes environment immediately after it is learned. It allows for the following:**

- Putting pedagogical approaches into practice
- Practising the use of different CPA approaches
- Practising the dissemination of learned subject knowledge
- Self-reflection opportunities including consideration of misconceptions which may arise from delivery of subject, consideration of timings of delivery
- Development of confidence
- Development of classroom presence, use of voice and pace
- Constructive feedback in a low-stakes environment

**Microteaching improves confidence and readiness for teaching in real classrooms**

# MICROTEACHING IN ITAP – YEAR 1 AND PGCE

## ITAP: HOW PUPILS LEARN

- Trainees spent the week considering pedagogical approaches including effective questioning and modelling techniques using digital approximations from Proxima as well as observations of recorded lessons and lessons delivered by their class teachers in their placement schools. There are associated readings with this learning but most pertinent is Rosenshine's Principles of Instruction (2012)

## ASSIGNMENT

- Year 1 trainees have an assignment which requires them to produce a portfolio of evidence from core subject tasks. There is a maths and English task which requires them to produce a video recording of modelling teaching. Before completing this, during ITAP week, trainees were able to practise this as a microteach to peers and receive feedback.



# WHAT DO WE ASK THE TRAINEES TO DO?

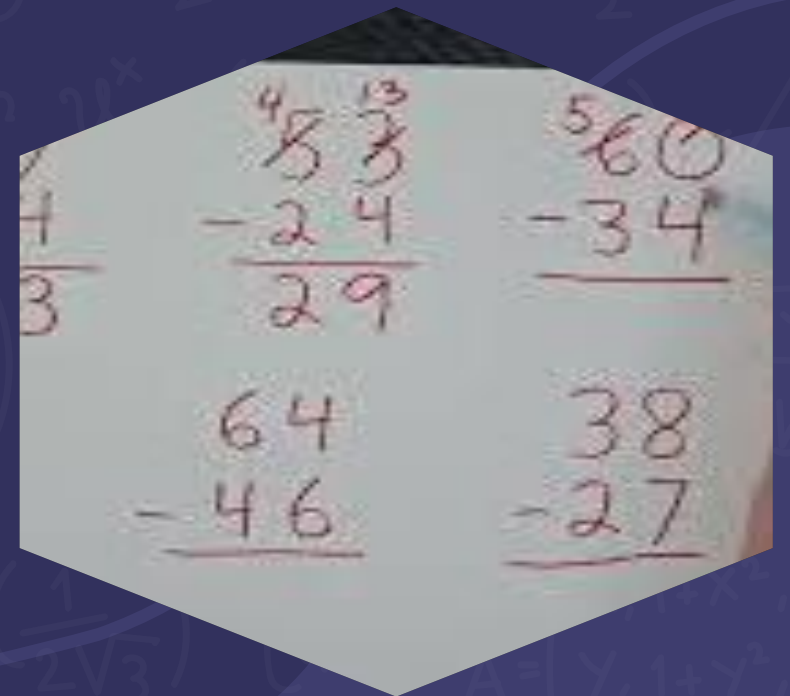
## REHEARSAL:

- Plan and execute an explanation of the 4 operations in maths (addition, subtraction, multiplication and division) to be presented to a small group on day 2. This will allow you to complete this aspect of your portfolio (maths task) to be recorded as a video.

## >> PEER FEEDBACK >>

## VIDEO:

- Your video will be a minimum of 2 minutes but no longer than 5 minutes.
- Stronger examples will include good clarity and quality of explanation (concise), knowledge effectively modelled with precise written methods and number formation.
- Please upload any evidence you may have used and notes of any feedback you received.



# ROSENSHINE'S PRINCIPLES OF INSTRUCTION (2012)

- Trainees read and were familiar with The Principles of Instruction (2012)
- Through digital approximations each aspect was considered carefully
- Trainees were asked to consider these when observing lessons
- Trainees were asked to use these during their microteaching focusing particularly on principles 2, 3, 4 and 5.

<https://teachingow2s.com/news/principles-of-instruction>

## THE PRINCIPLES OF INSTRUCTION

TAKEN FROM THE INTERNATIONAL ACADEMY OF EDUCATION

This poster is from the work of Barak Rosenshine who based these ten principles of instruction and suggested classroom practices on:

- research on how the brain acquires and uses new information
- research on the classroom practices of those teachers whose students show the highest gains
- findings from studies that taught learning strategies to students.

HOW2  
teachingow2s.com

### 01 DAILY REVIEW



Daily review is an important component of instruction. It helps strengthen the connections of the material learned. Automatic recall frees working memory for problem solving and creativity.

### 02 NEW MATERIAL IN SMALL STEPS



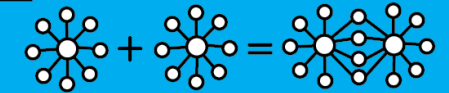
Our working memory is small, only handling a few bits of information at once. Avoid its overload — present new material in small steps and proceed only when first steps are mastered.

### 03 ASK QUESTIONS



The most successful teachers spend more than half the class time lecturing, demonstrating and asking questions. Questions allow the teacher to determine how well the material is learned.

### 04 PROVIDE MODELS



Students need cognitive support to help them learn how to solve problems. Modelling, worked examples and teacher thinking out loud help clarify the specific steps involved.

### 05 GUIDE STUDENT PRACTICE



Students need additional time to rephrase, elaborate and summarise new material in order to store it in their long-term memory. More successful teachers built in more time for this.

### 06 CHECK STUDENT UNDERSTANDING



Less successful teachers merely ask "Are there any questions?" No questions are taken to mean no problems. False. By contrast, more successful teachers check on all students.

### 07 OBTAIN HIGH SUCCESS RATE



A success rate of around 80% has been found to be optimal, showing students are learning and also being challenged. Better teachers taught in small steps followed by practice.

### 08 SCAFFOLDS FOR DIFFICULT TASKS



Scaffolds are temporary supports to assist learning. They can include modelling, teacher thinking aloud, cue cards and checklists. Scaffolds are part of cognitive apprenticeship.

### 09 INDEPENDENT PRACTICE



Independent practice produces "overlearning" — a necessary process for new material to be recalled automatically. This ensures no overloading of students' working memory.

### 10 WEEKLY & MONTHLY REVIEW



The effort involved in recalling recently-learned material embeds it in long-term memory. And the more this happens, the easier it is to connect new material to such prior knowledge.

# HOW IS PEER FEEDBACK GIVEN?



Trainees are provided with an assessment proforma containing the following prompts:

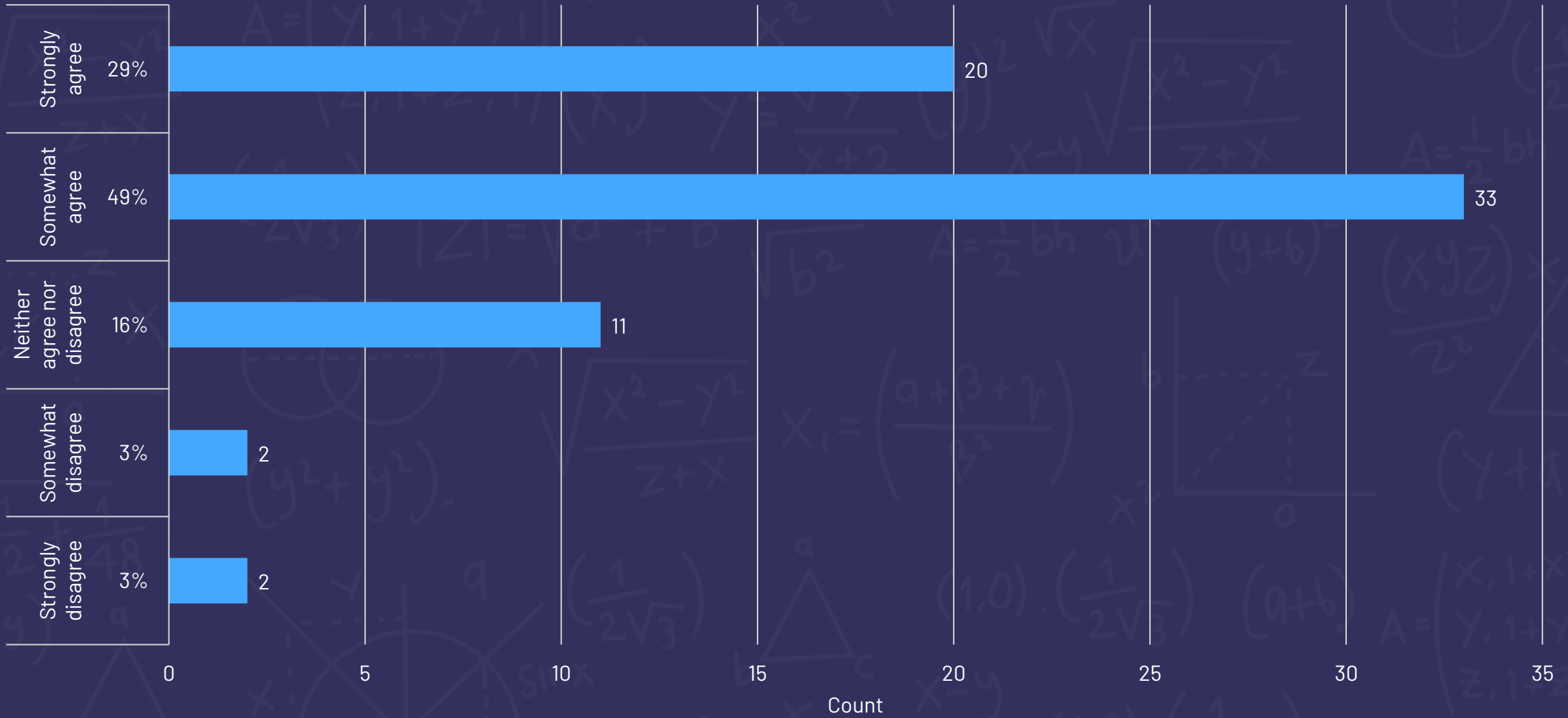
*Did the explanation...*

- check prior knowledge helping build on what pupils already know?
- check prior knowledge helping identify misconceptions that could inhibit learning?
- use examples?
- use modelling?
- anticipate misconceptions?
- include structured talk?
- provide opportunities for the pupil to explain their thinking to deepen understanding?

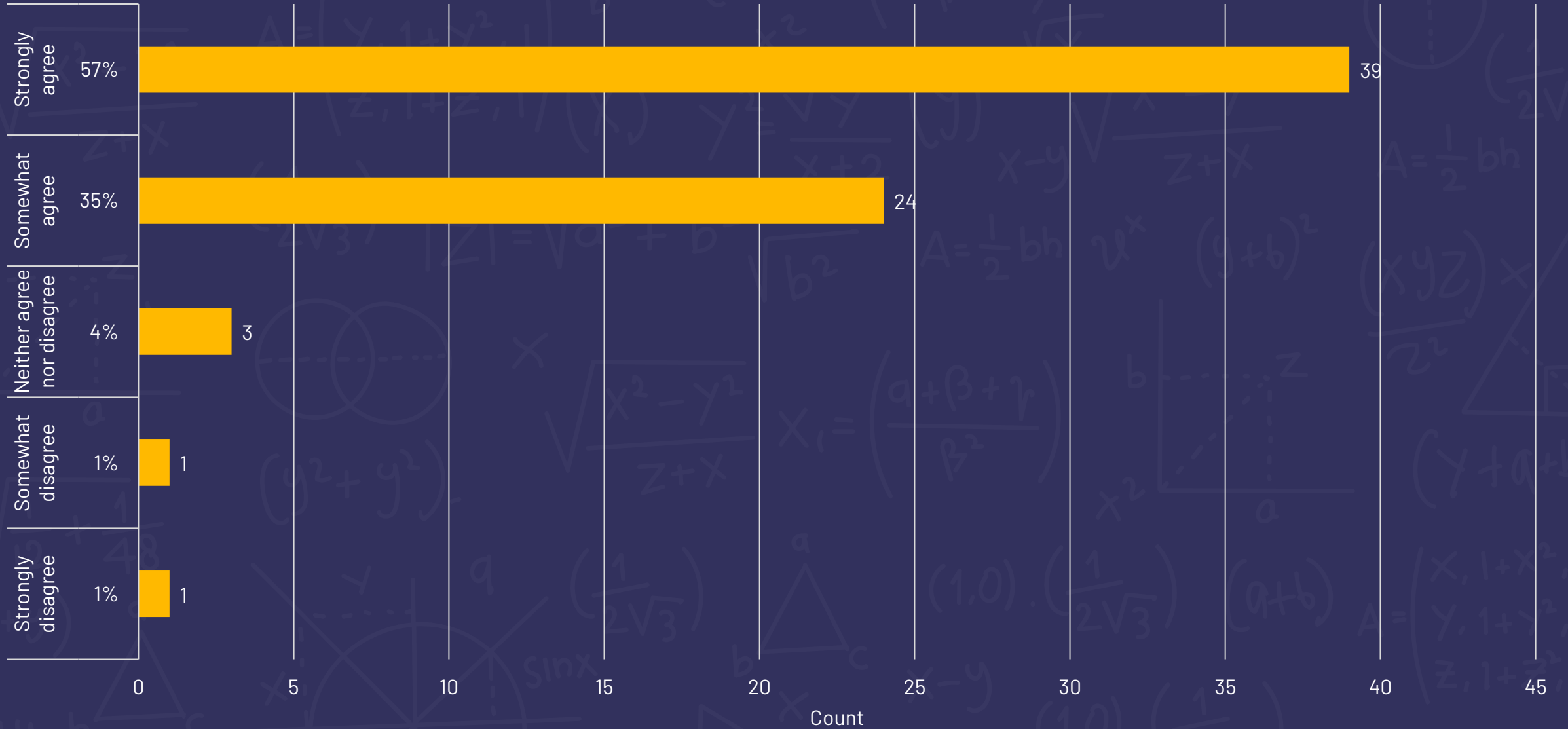
*Now consider:*

- What worked well
- Even better if

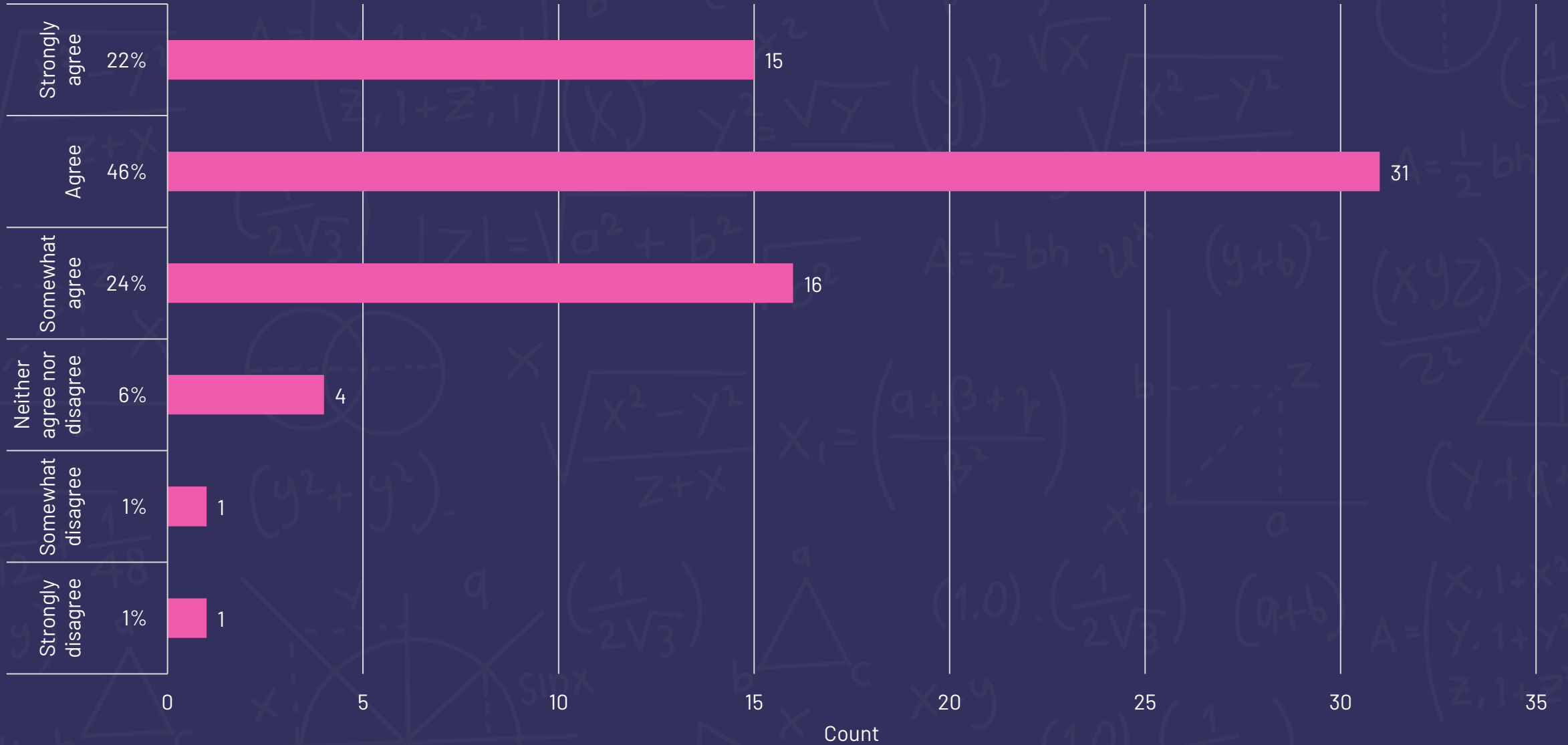
Q1 - I feel the microteach experience has improved my confidence to teach maths in the classroom



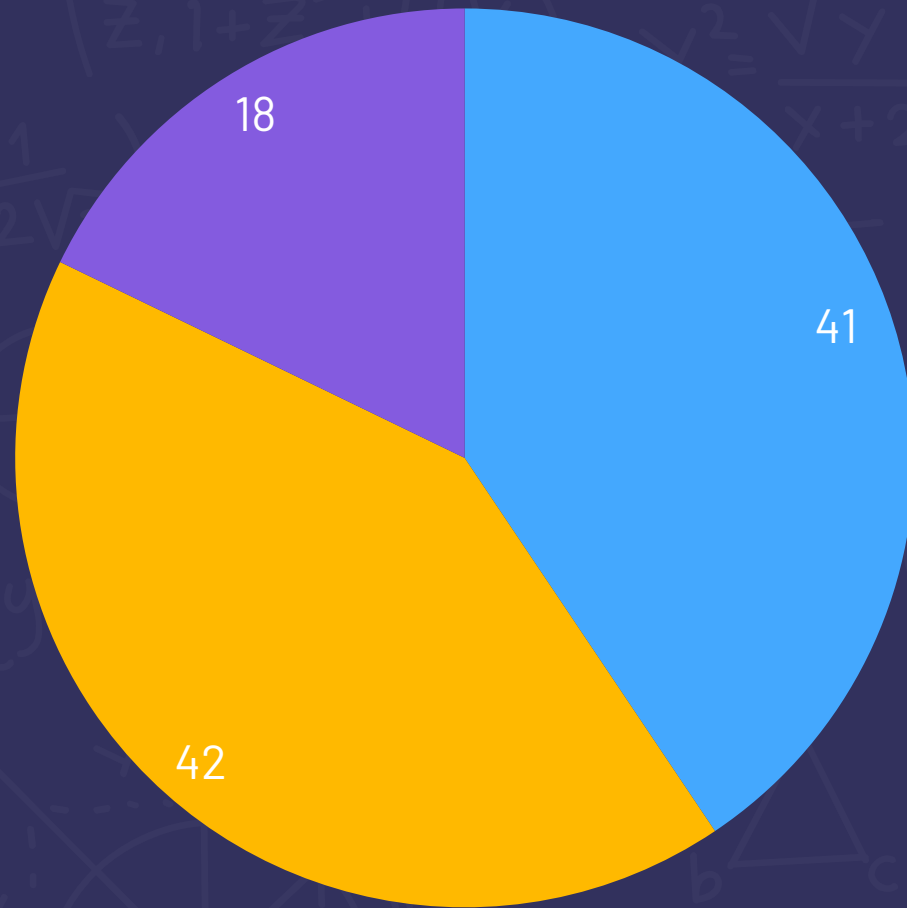
Q2 - I feel the microteach experience has improved my ability to complete the Maths and English video tasks for PRI131



Q3 - I feel the microteach has allowed me to improve my subject knowledge and the knowledge of effective delivery to pupils



Q4 - Given a choice, how would you prefer to receive feedback for your microteaching (choose all that apply)

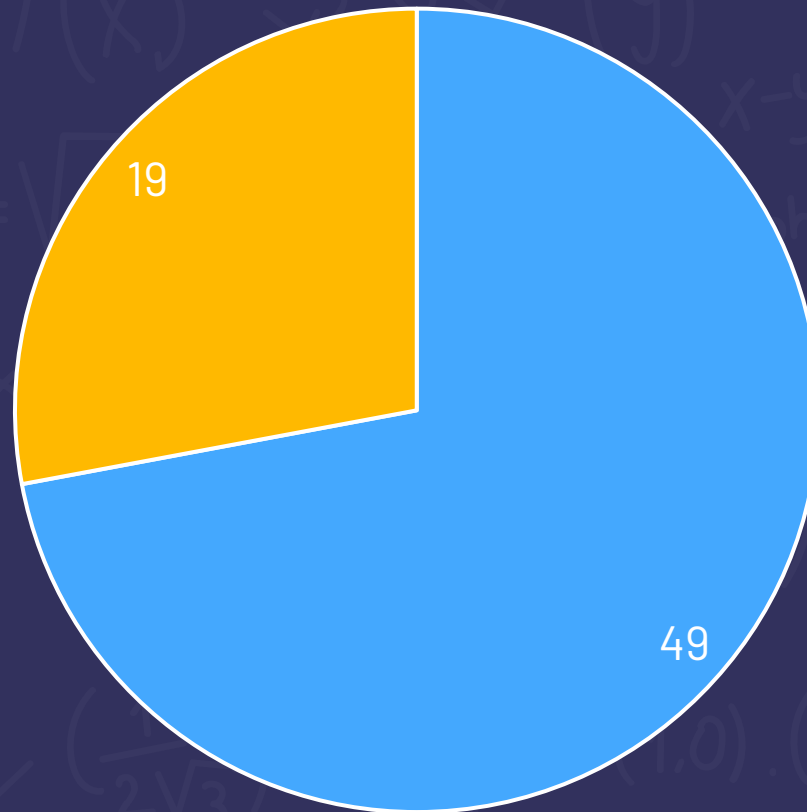


■ peer feedback 60%

■ staff feedback 62%

■ feedback following a video recording 26%

Q5 - Do you think video recording your microteaching to use for feedback would be beneficial for you?



■ Yes 72% ■ No 28%

# DO YOU THINK VIDEO RECORDING YOUR MICROTEACHING FOR USE FOR FEEDBACK WOULD BE USEFUL FOR YOU? - POSITIVES



"I liked gaining peer feedback in person"



"Any feedback can be beneficial. Use of video recording specifically means 'lessons' can be taught from distance and still receive helpful feedback"



"It means I could look back at what I [did] and then make improvements"



"Yes, as I feel there would be less pressure in front of an audience"



"[Yes], there is a record of feedback that I can reflect back on"

# DO YOU THINK VIDEO RECORDING YOUR MICROTEACHING FOR USE FOR FEEDBACK WOULD BE USEFUL FOR YOU? - NEGATIVES



"I think doing it without the recording made it less stressful for the first time"



"No as I prefer written feedback"



"I feel teaching in person is more beneficial and natural to me."



"More pressure when filmed and I work better when it's more of a conversation rather than filmed"



"No because I hate watching myself back"



"I think I would rather do it in a group first rather than embarrass myself in a video where I point out of all the flaws, I would rather have loads of different feedback from people"



"It doesn't make a difference"

# DO YOU THINK MICROTEACHING PREPARES YOU FOR DELIVERY IN THE CLASSROOM? WHY?



## YES

- Yes. It effectively models class teaching
- Yes! because it gives you a chance to practice your skills outside the classroom and build upon things you will probably need.
- Yes because it helps me reflect on my own teaching
- Yes, especially after having ITAP
- Yes, I received helpful feedback which will be useful.
- Yes, its a good way to build confidence
- Yes definitely. It allows me to see if it works with a smaller group before taking it to the classroom.
- Yes because you receive clear feedback from fellow peers.



## MIXED

- The process of planning the lesson and thinking about how you will lead it is useful. As long as your peers take part asking questions as a child would, considering the misconceptions they may have. If your peers simply take part as an educated adult they are less useful
- Yes and no. It's a bit awkward, but once you're over that it's greatly beneficial to receive feedback to inform my teaching.

# HOW DO THE FINDINGS FIT WITH THE LITERATURE?



Jakopovic et al. (2023)

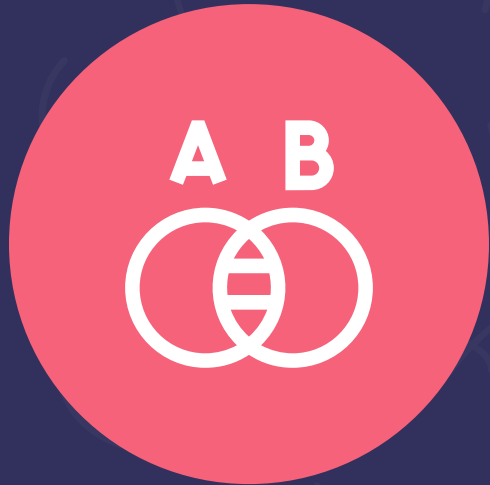
"Participants reported experiencing self-efficacy development" after engaging in MT.



Bilen (2015)

"The use of micro teaching implementations in class helped teacher candidates to overcome their reservations, [and] ma[d]e them more relaxed during lesson presentations"

# FINDINGS AND RESEARCH



Mukuka and Alex (2023)

Findings demonstrate that microteaching is an effective approach for enhancing pre-service teachers' core mathematics teaching skills.



Bilen (2015)

"Discussions with teacher candidates have shown that they felt excited and stressed at first due to video recordings. Later discussions indicated a decrease in these negative effects"

# NEXT STEPS



Mukuka and Alex (2023)

"Not much is known about the challenges and promises of microteaching and their influence on curriculum reform in mathematics teacher education".



Iliasova et al. (2025)

"Further research is recommended to understand pre-service teachers' perspectives on microteaching and to empirically assess whether microteaching foundations enhance the student learning process and boost enthusiasm for their future profession".

Can the assessment proforma be improved?

Is the feedback received 'typical' or representative?

How can the upcoming video submission be best utilized?

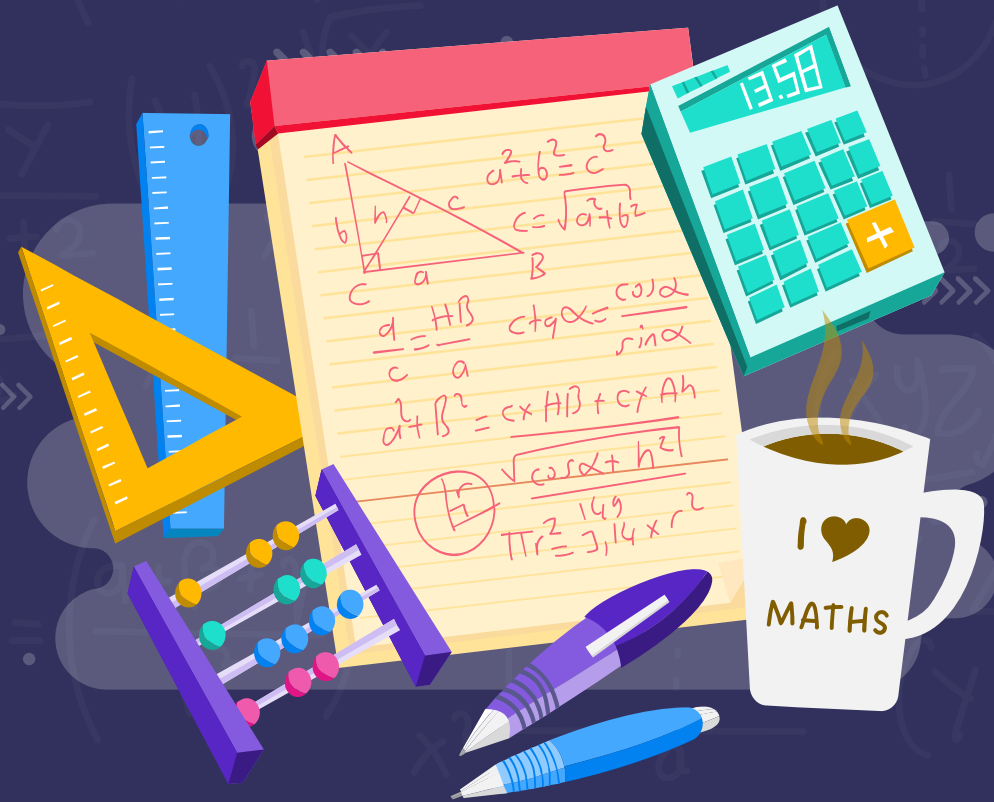
What feedback should be sought after the video submission?

# Thank you!



[simon.sheard@sunderland.ac.uk](mailto:simon.sheard@sunderland.ac.uk)

[kirsty.bell@sunderland.ac.uk](mailto:kirsty.bell@sunderland.ac.uk)



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